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ABSTRACT

This collection of papers for both the 1996 and 1997 Research and Scholarly Work Symposium includes: "Tip-of-the-Tongue Phenomenon in Older Adults" (Cheryl Anagnopoulos and Robert Johnson); "Beyond Being a Tool: Using Computer Technology in Secondary Schools to Create Meaning via Nonlinear Forms of Communication" (Mary-Ann Pomerleau); "Personal Values and Environmental Attitudes Effect on Pleasure Trip Preferences" (Claudia Jurowski and Gordon Walker) "Class Letters and the Pedagogy of Disclosure" (Roger Ochse); "Geographical Education: A Curriculum Analysis" (Roger P. Miller); "Using Hypercard to Create Classroom Management Case" (Roger Wolff and Perry Passaro); "Effects of an Explicit Reflective Writing Strategy on Students' Concept Development and Attitudes Toward Science" (Derrick R. Lavoie); "Sports in Australia: A Reflection of Culture" (Roger Miller); "2+2=5: Using Critical Thinking to Transform Individual Term Papers into Collaborative Research Projects" (Roger Ochse); "From Plato to Cyberspace: An Introductory Interdisciplinary Internet Course" (William J. Bogard); and "Middle Level Teacher Beliefs and Middle Level Reform" (Sandee Schamber). (All papers contain references.) (SM)

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RESEARCH AND SCHOLARLY WORK SYMPOSIUM

BLACK HILLS STATE UNIVERSITY

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1996 Research and Scholarly Work Symposium

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TIP-OF-THE-TONGUE PHENOMENON IN OLDER ADULTS

by

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One of the most frequently cited difficulties experienced by older adults is their inability to recall words, particularly the names of friends and relatives. Yet little research has been done to examine this situation. Word retrieval problems occur anytime a person knows a word yet cannot think of it. Frequently the individual feels not only that they know the word but also that it is "on the tip of their tongue." They feel as if they are almost able to grasp the word yet it manages to elude them. The individual may possess some information regarding the word such as its initial letter or the number of syllables. Such an experience is called a "tip-of-the-tongue phenomenon (TOT)." While word retrieval problems may go unnoticed in discourse, such deficits are highly problematic for the production of discourse. The inability to retrieve words or names in conversation is not only frustrating for the individual but makes conversation difficult. Along with other language processing deficits, word retrieval problems may exacerbate the communicative predicament of older adults.

Studies have shown that while all age groups experience occasional word retrieval problems, those of older adults are quantitatively different from their younger counterparts (Cohen & Faulkner, 1986). Older adults complain about word retrieval problems, particularly proper names, more often than younger adults. Older adults have higher self-reported estimates of TOT occurrences and poorer self-ratings of their ability to remember proper names and object names than younger adults (Cohen & Faulkner, 1984).

One technique used to study TOT states involves inducing the condition which can be done a number of ways: supplying definitions and asking for the word or eliciting the name of a person with a question. This technique has been utilized by Burke, McKay, Worthley, and Wade (in press) to study TOTs in older adults.

Burke and her colleagues (in press) have proposed the Transmission Deficit Hypothesis to account for age-linked deficits in word retrieval. It is based on an interactive activation model of speech production which postulates a hierarchically related system of nodes. There exists a semantic system and a connected phonological system. Within this model, words are retrieved as propositional nodes are activated in the semantic system. Activation transmits priming to the appropriate lexical nodes and further to the connected phonological nodes. Words are retrieved as the phonological nodes of the word are activated. Tip-of-the-tongue states result from deficient connections between lexical and phonological nodes. There is a deficit in priming after the lexical nodes in the semantic network become activated; access to semantic information about the target word is permitted, however, the connected phonological nodes are not adequately activated due to insufficient transmission of the priming. Since there is some transmission, some information is available about the phonology of the target word (e.g., initial letters). With aging, the connections become weakened and deficient due to infrequent use and non-recent use. One problem with this hypothesis is the implication of permanent change. That is, if the connections are weakened, there should nearly always be a TOT for certain words. Yet, TOTs appear to be a temporary state and sporadic in nature (Maylor, 1990).

The Transmission Deficit Hypothesis argues that increased TOT states for older adults are a product of non-recent usage. This experiment was designed to test that claim by priming subjects with passages containing target words, thereby creating recent usage. Will subjects experience fewer TOT states after being primed with passages containing the target words? If so, will there be an age-related difference in the characteristics of the TOT target words available?

METHOD

Subjects

Forty-five Black Hills State University students and thirty-one community dwelling older adults were tested. The younger adults ranged from 19 to 51 years old with an average age of 31 years. This student population is unique in the high number of non-traditional students which could provide a better continuum of aging analyses. The older adults were divided into two groups: twenty-one young-old adults ranging from 60 to 74 years old with an average age of 67 were tested; ten old-old adults ranging from 75 to 85 with an average age of 79 were also tested.

Materials

Three categories of target words were used: rare object names, contemporary famous names and dated famous names. The rare object names and the contemporary famous names were taken from Burke et al. (in press). The remaining category was piloted for TOT occurrences prior to use.

Half of the target words from each category were used to develop passages. These passages contained information about the target word.

Procedure

Subjects were interviewed individually. Each subject read thirty short passages, each containing one of the target words. After reading each story, two comprehension questions were asked to insure that subjects were reading each passage carefully. After reading the passages, subjects were given the TOT test consisting of sixty questions designed to elicit a TOT state. Thirty of these had been primed with the preceding passages. Subjects were asked to report if they knew the word, didn't know the word, or were in a TOT state. If they were in a TOT state, subjects were asked for any characteristics of the word. Subjects were then shown the question followed by four multiple choice answers to choose from, thereby, allowing verification of their knowledge of the word or name.

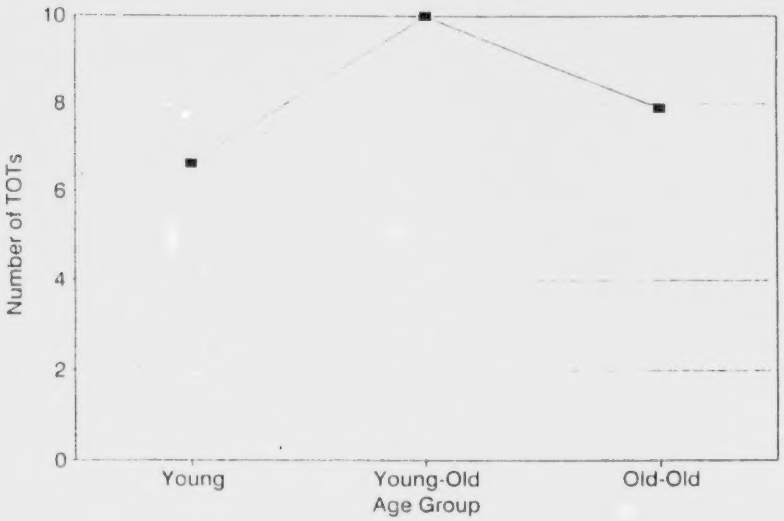
Results

The number of TOT experiences were calculated for each group across target categories and priming levels. All analyses involve three (3) Age Groups × two (2) Priming Levels (primed or not primed) × three (3) Target Categories (dated famous names, contemporary famous names, and rare object names) ANOVAs. Dependent measures include: (1) the number of TOT states, (2) the number of characteristics generated to TOT states. All analyses used unequal n ANOVA's with weighed means.

An overall Age Effect was obtained, [$F(2,73) = 3.41$, $p < .039$]. Young adults experienced the fewest TOT states followed by the old-old adults. The young-old adults experienced the highest number of TOT states (see Figure 1).

Figure 1

Main Effect of Age

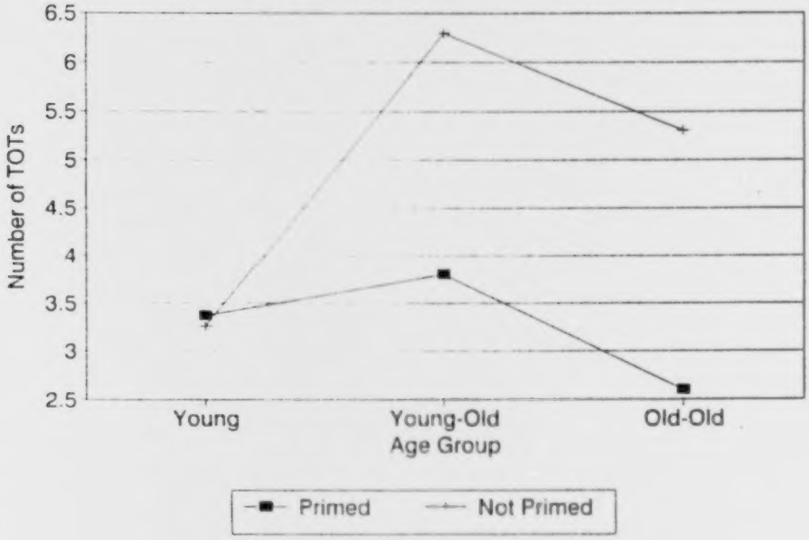


To investigate this discrepancy, a ratio score of the number of times subjects responded “they didn't know when they did know” was generated as an index of cautiousness. The old-old group had a higher ratio than the young-old adults who had the lowest ratio indicating that the old-old were, perhaps, less willing to admit a TOT state and search memory for it.

A main effect of target category was also significant, [$F(2,146) = 11.28$, $p < .001$]. Contemporary famous names elicited the highest number of TOT states, followed by dated famous names and finally rare object names.

The results also yielded a two-way interaction: Age Group × Priming, [$F(2,73) = 10.65$, $p < .001$]. The young adults were unaffected by priming. Both older adult groups were differentially affected by priming. Both older adult groups had significantly higher numbers of TOT states when unprimed. However, when the older adults read the priming passages, the number of TOTs was not significantly different from younger adults. Priming reduced the number of TOT states by almost half for both older adult groups. Further, the old-old reduced the number of their TOT states to fewer than those of the younger adults (see Figure 2).

Figure 2
Age Group X Priming



Subsequent analyses on the number of characteristics generated revealed no differences across age, priming or category type. Older adults generated as many characteristics as young adults.

Conclusion

This experiment was designed to test whether the Transmission Deficit Hypothesis was correct in the premise that TOT states are caused by lack of recent usage. The results indicate that this is indeed true. When older adults were given "recent exposure" to the target words through priming, the number of TOT states decreased significantly. The number of their TOT experiences dropped to the level of younger adults. The Transmission Deficit Hypothesis also implied permanent change between connections. However, contrary to Burke et. al. (in press), connections are not permanently weakened as priming appeared to "re-activate" the lexical nodes. Future research might examine the duration of this "re-activation."

Word retrieval problems will continue to be a source of embarrassment for older adults. However, older adults can take solace in the knowledge that this problem is not necessarily reflective of a permanent age-related change in memory. Rather, older adults are simply experiencing difficulties finding words because they have not used that particular word recently.

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BEYOND BEING A TOOL: USING COMPUTER TECHNOLOGY IN SECONDARY SCHOOLS TO CREATE MEANING VIA NONLINEAR FORMS OF COMMUNICATION

by

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In the fall of 1994 at The Peddie School (Peddie), an independent, preparatory school in central New Jersey, thirty of the 120 sophomores exercised a curricular option called the Principio Project (Principio). This project was devised by a team of faculty from across the disciplines to build, with modern tools and ancient wisdom, as coherent a curriculum for the 21st Century as we can devise, thus serving well all the students and faculty at Peddie, and thereby serving, too, as a model for others [sic] schools trying to improve education in America. . . The curriculum is integrated and interdisciplinary in the humanities and sciences. The program depends fundamentally on exploiting technology in learning. . . The program establishes as the heart of its curriculum the teaching skills, wisdom, creativity, devotion, and diverse talents of the teachers who, together, do its work while making its focus the academic and personal needs of students preparing to study and work in the 21st Century (The Principio Project at Peddie, 1994, p.1).

Exploitation of computer technology in learning in Principio is described, herein. Review of contemporary research is given to substantiate use of computer technology in Principio. An explanation of the Peddie Information Network (PIN), Principio's connection to PIN and the development of the use of computer technology in the second year of Principio are also included.

Overview

In third millennium education, information will come from a base that will continue to burgeon with access to that base being ubiquitous (Negroponte, 1995). Computer technology, then, becomes a critical tool. When computer technology is integrated into curriculum, teaching strategies and teacher and student relationships change (Sivin-Kachala & Bialo, 1995). The Principio Project (Principio) at The Peddie School (Peddie) was designed to teach students how to gather, organize, and produce information using computer technology with information from an expanding base. Principio students are guided by their teachers to develop interdisciplinary ways of thinking through curriculum presentation, authentic learning experiences and utilization of computer technology.

Integration of Computer Technology

Computer technology is a tool to engage learners in complex, authentic tasks that involve interdisciplinary projects, cooperative learning groups and flexible scheduling (Means & Olson, 1994). A four-year longitudinal study of Apple Classrooms of Tomorrow^{SM} (ACOT) has revealed new student competencies in organizing and accomplishing work with computer technology when teaching strategies were "balanced between the appropriate use of direct instruction and collaborative, inquiry-driven knowledge-construction" (Dwyer, 1994, p. 9) as illustrated in Table 1.

Table 1. Changes in Classroom Culture

	Traditional	With Computer Technology
Classroom Structure	Teacher Directed	Student Centered
	Teacher as Expert	Teacher as coach, guide, facilitator and learner
	Student as Learner	Student as Learner, Collaborator, Expert, Active Participant Responsible for Own Learning
Curriculum	Specific Units	Interdisciplinary
Assessment	Norm-referenced Tests	Demonstration of Knowledge According to Rubric
Integration of Technology	Assisted Learning Tutorial	Tool to Gather, Organize and Produce Information

ACOT was feasible because software has changed. Software has developed beyond the realm of computer-assisted instruction (Means & Olson, 1994) to include interactive capabilities and sound and motion to support text (Negroponte, 1995). Greater opportunities for authentic learning in instruction have become available with the development of software that makes the computer a tool that facilitators can use to engage learners in complex, interdisciplinary projects (Means & Olson, 1994). A complex project using technology features an authentic, challenging task in which all students utilize higher order skills while working during extended blocks of time in heterogeneous, collaborative groups with teacher as coach (Means & Olson, 1994).

A summary of the Software Publishers Association's "Report on the Effectiveness of Technology in School's 1990-1995" shows computer technology "improving student achievement, improving student attitudes and self-concept, and enhanced the quality of student-teacher relationships" (Reinhardt, 1995, p. 52). Cohen (1995) makes the same summary and suggests that use of computer technology as a tool to do the same tasks in a more efficient way will not positively affect instruction. A major implication is that the *students need to learn how to use technology to solve problems, construct meaning, and create new nonlinear forms of communication* (p. 33).

The Integration of Computer Technology in Principio in the Context of the Peddie Information Network

The Peddie Information Network (PIN) had its beginning on a small scale in 1990. However, it was not until the spring of 1992 that a long range plan for a "full campus network" (Implementing PIN: A Timeline, p.1) was implemented. As of summer 1995, all buildings, including dormitories, are wired. All classrooms have data ports, although some are not activated; and every dormitory room (except in one small dorm) has a data port for each occupant; again, however, not all data ports are active.

PIN was created with the ongoing conviction that, used properly, "information technology can transform the classroom, making the student an active, powerful participant in his or her own education" (Technology at Peddie, 1995, p. 1). Moreover, in the spirit of the school's mission to foster the "dignity and worth of all individuals, . . .every member of the Peddie community is a full and active member of the electronic network" (Technology at Peddie, p. 1) (Corica, personal communication, May 18, 1995). This means that all in the Peddie community see the same menu for software selection from all computers and data ports, have access to the Internet and all in the community via an alphabetical E-mail directory. Upon becoming a part of the community, this researcher included, one is given a password, an E-mail address, a brief introduction, a code of user ethics and the freedom of privacy from invasion.

The Principio Connection to PIN

> *". . .to build with modern tools and ancient wisdom as coherent a curriculum for the 21st century [sic] as we can devise. . ."* (The Principio Project, 1993, p.1).

Principiates (students in the Principio Project) use laptop computers to gather, communicate, organize and produce information. Both Principio classrooms are equipped with data ports for each student and teacher. Data ports connect laptops to PIN. Principiates are assessed for their ability to use computer technology.

Principiates use computer technology as a tool. PIN is Principio's gateway to information. Principiates are required to have their laptop with them in their classrooms at all times. Principiates check E-mail at 8:00 a.m. While in Principio classrooms, Principiates connect their laptops to data ports. According to Principio's Director Clements during an interview on May 15, 1995, students are engaged during academic time with their laptops for an average of 90 minutes daily.

During academic time, this researcher observed Principio students in specific curricular areas for the purpose of gathering, communicating, organizing and producing information. Likewise, Principio teachers engage in laptop use. Teachers have their laptops with them at all times and are connected to PIN. Teachers engage in electronic record keeping, evaluation of student work, research, response to E-mail, formal assessment of student work, searching via Internet for resource personnel and information pertinent to current or future instruction.

"The Principio Project (1994)" lists computer technology skills and knowledge expected of Principiates, for which they were also assessed, the ability to

1) choose and use appropriate technology
2) present data in a clear and convincing manner, and to communicate the results . . . electronically
3) to use computers and networks as tools for communicating, solving problems, and gaining access to information
4) to use the electronic networks as a means of communicating within Peddie and the larger community
5) to use electronic tools to develop reading, writing computational, creative, visual, and other thinking skills
6) to gain access to and learn information the bodies of knowledge within the curriculum (p. 12).

Principio, then, in its first year operated according to contemporary research findings while being faithful to the school's mission and good teaching practices. Linear forms of communication develop ideas, concepts or organize information according to Aristotelian logic: If A and B, then C or from A to B to C. Nonlinear forms of communication branch (personal communication with Dr. John Usera, April 12, 1996). In nonlinear construction, information is gathered, organized, and produced in a step-by-step manner. Within the steps topics are developed, explained, interpreted and analyzed. Principiates developed nonlinear constructs during their second year as juniors. Two exemplary projects were the Valley of the Shadow Project for Humanities and The Anemometer Project for Natural Philosophy.

The essays produced in the Valley of the Shadow Project answered the question: "Was the Civil War inevitable?" To answer this question Principiates were to include but were not limited to primary research from the World Wide Web site at the University of Virginia called The Valley of the Shadow. These students were the first to use this research and publish their results at that Web site. The essays answer the question in logical, linear form. However, through the use of Hypertext Markup Language (HTML), the reader or researcher is afforded the opportunity to move beyond the primary text by selecting highlighted words in the text to open screens that embellish, analyze, and with sound and/or pictures (animated and still) portray a feature of the essay in a way that is equivalent to a theatrical aside. Richness and robustness are given to the text by these contexturalizations. Laptop computers with access to the Internet and word processing software with HTML capabilities provided the branching apparatus.

"Can a temperature probe be converted to an air speed indicator by using wind chill factor?" (Personal communication with Mr. James Ealy, Principio natural philosophy teacher, March, 1996) was the central question of the Anemometer Project. Using Computer Based Labs (CBLs) connected to Texas Instruments' TI 83 hand-held, programmable calculators as exploratory tools, Principiates designed aerodynamics experiments to be sent aloft in radio controlled gliders. Flight data was recorded using probes on the CBLs. Data was then analyzed to determine significance. Hypotheses were formed and tested. Information was interpreted and analyzed. In the process, the TI 83 and the CBLs were programmed to collect and graph data. Data was then analyzed to determine significance. Hypotheses were formed and tested. Information was, again, interpreted and analyzed. In the process the TI 83 and the CBLs were programmed to collect and graph data. The information was recorded and published at the Texas Instruments and Peddie web sites for public domain use.

In both projects computer technology was used for linear communication and construction of nonlinear forms of conveying information. Discovery was branched from the initial question. Consequently, knowledge of the social, economic and political milieu of the Civil War period, of the physics of aerodynamics and of the scientific method was used along with computer technology to provide interpretation and analysis of data that (1) lead to a new discovery and (2) was made available for others to duplicate and expand.

Please visit the Principiates and enjoy nonlinear experiences at:

http://www.peddie.k12.nj.us/princip

Remember that this work has been done by average secondary school juniors for whom there is high expectation by well-prepared teachers. Principio's interdisciplinary curriculum is communicated through cooperative and authentic learning balanced with traditional lecture during large blocks of flexible academic time with high access to a democratic information network using laptop computers. GO!!! VISIT!!! Discover vicariously. Or...expand on what Principiates, high school juniors, have begun.

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PERSONAL VALUES AND ENVIRONMENTAL ATTITUDES EFFECT ON PLEASURE TRIP PREFERENCES

by

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OBJECTIVES

Knowledge concerning the relationships among personal values, environmental attitudes and preferences for tourist destination features is important for marketing, development and environmental protection efforts. Research has demonstrated that environmental attitudes may be a better predictor of activity choices than demographic information (Van Liere & Dunlap, 1981; Dunlap & Cantton, 1980; Jurowski, Uysal, Williams & Noe, 1993; Uysal, Noe, Jurowski & McDonald, 1994). Personal value systems have been suggested as a contributing factor in the determination of an individual's attitude toward environmental issues (Dunlap, Van Liere, Mertig, Catton & Howell, 1992) as well as a factor in the choice of leisure activities (Beatty, Kahle, Homer, & Misra, 1990; Jackson, 1973; Carman, 1977; Walker, 1992). This earlier research suggested that an examination of values in conjunction with environmental attitudes as factors that affect pleasure trip preferences would produce meaningful results. Information gained from this research will be useful for the design of marketing campaigns, tourist products, and communication messages which urge visitors to reduce environmentally destructive behavior.

METHODOLOGY

Sample

A national marketing firm's database was used to identify individuals who had visited Southeast Virginia and/or surrounding states. After individuals meeting these criteria were identified, a stratified sample frame was generated composed of 1600 Americans from seven eastern and mid-western regions of the United States and 150 Canadians. Each participant was then mailed a six-page questionnaire; a separate cover letter with instructions, and a stamped addressed return envelope. One reminder postcard was sent to the American participants and two reminder postcards were sent to the Canadian participants. No incentives for participating in the study were provided. Twelve hundred and eighty three questionnaires were returned, resulting in an overall response rate of 73.3 percent. Of those responding to the survey, 65.5 percent were female and 34.5 percent were male. Average age of the respondents was 51.8.

Variables

Environmental attitudes were measured by respondents' scores on the New Ecological Paradigm Scale (NEP) designed by Dunlap, Van Liere, Mertig, Catton & Howell (1992). The New *Ecological* Paradigm Scale is an updated version of Dunlap and Van Liere's (1978) widely used New *Environmental* Paradigm scale (cf. Bultena & Hoiberg, 1986; Caron, 1989; Edge & Nowell, 1989; Noe & Snow, 1989; Jurowski, et. al. 1993). Research conducted by Dunlap, et al. (1992) has demonstrated the new scale's internal consistency and predictive and construct validity.

The New Ecological Paradigm Scale proposed that humankind lives in harmony with nature in a finite environment. This perspective differs from a more anthropocentric view that the proper role of nature is to be controlled in the service of humankind (Samova, Porter & Nemie, 1981). The NEP Scale is composed of 15 items, with three exemplifying each of Dunlap et al.'s (1992) five facets of an ecological worldview: 1) the reality of limits to growth; 2) anti-anthropocentrism; 3) the fragility of nature's balance; 4) the rejection of exemptionalism (i.e., humans are exempt from the constraints of nature); and 5) the possibility of an ecological catastrophe. In this study, responses to the NEPs 15 items were measured using a five-level Likert-type scale. Agreement with eight of the 15 statements is interpreted as agreement with the ecological world view while agreement with the other seven statements reflects an anthropocentric view. Consequently, these seven statements are reverse scored so that disagreement with them indicates an ecocentric attitude.

The List of Values Scale (LOV) developed by researchers at the University of Michigan Survey Research Center (Kahle, 1983) was used to measure value orientations. This measure has been found to be preferable to other scales which measure values for consumer research (Kahle, 1986). Survey respondents are asked to indicate on a five-point Likert-type scale how important each value is in influencing their daily lives. Further, the respondent is asked to check the value they consider to be the most important.

Forty items were designed by tourism researchers at Virginia Polytechnic Institute and State University to measure elements that attract people to a particular trip. Respondents were asked how important each item on the list was to their choosing a particular pleasure trip destination. A five-point Likert scale was used with "not at all important" at one end of the scale and "extremely important" at the other end. Specific items in the scales are described in Tables 1, 2, and 3.

Analysis

The analysis consisted of 1) the factor analysis of both the NEP Scale and the forty preference items, 2) weighting of LOV Scale responses, and 3) a canonical analysis of the three sets of variables. First, the NEP Scale and the forty items designed to determine elements that attract people to a particular pleasure trip destination were factor analyzed. A varimax rotation procedure was utilized. Tables 1 and 2 delineate the items in both the NEP Scale and the list of pleasure trip preference elements and provide the results of the factor analysis of the two sets of variables.

The second step was to compute a value index score. The index, created by Madrigal and Kahle (1994), weights the importance of a respondent's individual rating on the most important value relative to his/her rating of all nine values. The index was determined by dividing the rating of each value by the mean score on all nine values and then multiplying the product of this calculation by the score the respondent provided on the most important value. Consequently, each value was weighted to represent the importance of the respondent's individual rating on the most important value relative to his or her rating of all nine values.

The factor groupings of the NEP Scale delineated in the first step along with the index measure of the nine values of the LOV Scale were used as predictor variables in a canonical analysis. The criterion variables were measured by the scores of the preference groupings. The analysis revealed an interpretable five-variate solution. The figures in Table 3 represent canonical loadings after varimax rotations.

Results

The factor analysis of the environmental belief statements resulted in four factor groupings which accounted for 58% of the variance. Table 1 presents the results of the factor analysis with associated statistics. The four groupings were labeled to represent the underlying aspects of an ecological worldview. The results of this analysis are similar to those found by Dunlap et al. (1992).

Eight factor groupings evolved from the factor analysis of the forty pleasure trip preferences. These were titled, "Quality/Convenience," "Appreciative," "Cultural/Historic," "Relationship Building," "Vigorous Outdoor Activities," "Leisure Activities," "Resort Activities," and "Amusements." The groups which resulted from varimax rotation procedures explained 63.5% of the variance. Specific items and the statistics relevant to this factor analysis are presented in Table 2.

The MANOVA procedure in SPSS was utilized for the canonical analysis of the preference, value, and environmental attitudes variables. Multivariate tests of significance indicated that the predictor set had a statistically significant effect on the criterion set. The analysis revealed an interpretable five variant solution.

The figures in Table 3 represent canonical loadings after varimax rotations. The canonical loadings can be interpreted in the same manner as factor loadings (Hair, Anderson, Tatham and Black, 1987). Only variables with a loading of at least .39 on a variate are interpreted. The canonical correlation of each variate is significant at the .05 or better probability level. The five variates explained 4.9% of the within set variance in the criterion set and 46.2% of the variance in the predictor set. The difference between the amount each set explains was expected since, theoretically, values and attitudes should define choices and decisions people make (Rokeach, 1973; Kluckhohn, 1951; Ajzen and Fishbein, 1980) but preferences are not expected to explain environmental attitudes or values.

The analysis of the canonical loadings in the first variate suggests that a preference for resort activities and quality and convenience elements are positively associated with each other and with a rejection of exemptionalism. The personal value, excitement, demonstrated the strongest correlation with the aforementioned variables. Other personal values which correlate with these variables were being well-respected, fun and enjoyment, and warm relationships. This variegate explained 13.8% of the variance.

A second variate, which explained 9.6% of the variance, suggested that preference for amusements (e.g., theme parks) and vigorous outdoor activities (e.g., bicycling, snow skiing) are negatively correlated with the belief that there are limits to growth and that the balance of nature is easily upset. This negative relationship suggests that preferences for these destination attributes is related to a weaker sensitivity to environmental concerns. These same preferences are positively correlated with a value for warm relationships.

Comparison of the first with the second variate demonstrates that preferences for resort type activities is more closely associated the values of excitement and being well-respected. On the other hand, preferences for amusements is associated with a value for warm relationships. The analysis also implies that stronger ecocentric attitudes are associated with preference for resort activities while preference for amusements such as theme parks, and vigorous outdoor activities such as canoeing, snow skiing, and hiking are associated with more anthropocentric attitudes.

A third variate extracted from the residual variance reveals a positive relationship between preference for familiar places, activities with families and friends and romantic settings with a value for a sense of belonging and warm relationships. This variate explained another 7.7% of the variance. Preference for these relationship building activities is negatively related to preferences for opportunities for leisure activities such as hunting, fishing, horseback riding. Preferences for the latter is negatively related to the externally directed values of sense of belonging and warm relationships. The association between the two criterion variables (relationship building activities, leisure activities) and the environmental predictor variables is not strong enough to be interpreted.

A fourth variate extracted preferences for opportunities for enjoying scenic beauty, relaxation, and quaint villages/towns and associated these preferences with a sense of accomplishment and self-fulfillment. Environmental attitude predictor loadings reflected a negative association between this preference factor grouping and the belief that the balance of nature is fragile. Preference for these appreciative activities was also negatively correlated with vigorous outdoor activities. This residual preference for vigorous outdoor activities was related to a belief in the fragility of nature's balance and negatively associated with a sense of accomplishment and self-fulfillment.

A fifth variate illustrated that a value for warm relationships was associated with preference for relationship building activities (familiar places, activities with family and friends and romantic settings) and hunting, fishing, children's activities and horse back riding. These preferences were negatively related to resort activities. The relationship with environmental attitude factor groups was too weak to be meaningfully interpreted. Table 4 summarizes the major findings of the canonical correlation analysis.

CONCLUSION

Table 4 presents a summary of the relationships among the criterion variables (pleasure trip preference factor groupings) and the predictor variables (values and environmental attitude factor groupings). There appears to be a correlation between sensitivity to the environment and preference for resort activities, quality, and convenience. Individuals attracted to tourist destinations offering these attributes are more likely to be responsive to requests for conservation of natural resources. Environmental messages which focus on humankind's responsibility to nature and offer visitors opportunities to gain respect of others may be the most successful. Design features of these attractions should be environmentally sensitive. It will be important to describe and define ecologically sound features as part of the marketing strategy. The value orientations associated with preference for resort activities suggest that marketing should also be focus on excitement, fun, and opportunities for the development of warm relationships.

On the other hand, those who prefer destinations which offer theme parks and vigorous outdoor activities may not believe in limits to growth and may even be somewhat anthropocentric. There appears, however, to be a relationship between some preferences for vigorous outdoor activities and a belief in the fragility of nature's balance. Consequently, efforts should be made to design products to prevent abuse by the visitor. It may be possible to involve those who prefer these features in group activities such as clean-up campaigns if the activity offers opportunities for developing or enhancing friendships since a value for warm relationships is associated with these preferences. Marketing should be directed toward having fun with friends.

Individuals who prefer natural features, quaint towns, parks, etc. may also be less environmentally concerned. They may not believe in the fragility of nature's balance. Efforts to involve this group in the protection of the environment should be focused on opportunities for achievement rather than on the need to conserve and protect. Marketing efforts may be most effective if they highlight rewards and self-indulgence.

Preferences for relationship building features such as being in a familiar place, romance and togetherness and preferences for hunting, fishing, children's activities and horseback riding appear to be diametrically. While preferences for the former is positively associated with a sense of belonging, the later preferences are negatively associated with the same value. For the former, environmental messages should appeal to the needs of the next generation and marketing efforts should focus on romantic settings and family values. The analysis suggests preference for leisure activities such as hunting is not associated with any particular environmental attitude.

Evidence of the relationships uncovered in this research is important for the design, marketing and management of tourist destination resources. Because the sustainability of tourism is dependent upon the conservation and preservation of the resource upon which the tourism product is developed, destination areas may wish use the information provided here to select communication messages and design products to manage visitor behavior as well as attract new customers.

TABLE 1
FACTOR ANALYSIS OF PREFERENCE ELEMENTS

Preference	Factor Loading	Eigen-Value	Var. Expl.
Quality/Convenience		14.23	33.9
Ease of getting around	.8533		
Clean/well-maintained environment	.7760		
Well-marked roads and attractions	.7757		
Consistently good weather	.7715		
High quality services and accommodations	.7313		
A good value for a vacation trip	.6556		
Attractions that are close together	.6273		
Useful and interesting traveler information	.6052		
A variety of things to do and places to see	.5733		
Convenience to home or being easy to get to	.5727		
Offering exciting travel experiences	.4144		
Appreciative		3.12	7.4
Natural features or wonders	.7361		
Mountains	.7343		
National parks or forests	.7071		
Fall colors	.6168		
Quaint towns and villages	.6016		
Restfulness and relaxation	.5084		
Cultural/Historic		2.82	6.7
Visiting historical buildings and sites	.7790		
Visiting Civil War sites	.7011		
Attending festivals and cultural events	.6622		
Sightseeing	.5049		
Seeing or experiencing new things	.4260		
Relationship Building		1.64	3.9
Being a familiar place	.6886		
Being a reward or indulgence for myself and family	.6856		
Rediscovering yourself	.5877		
Togetherness and closeness with my family or friends	.5570		
Romance or a romantic setting	.4708		
Vigorous Outdoor Activities		1.37	3.3
Canoeing or rafting	.7926		
Bicycling	.7707		
Hiking	.7523		
Snow skiing	.5258		
Leisure Activities		1.27	3.0
Hunting	.7396		
Fishing	.6936		
Offering activities for children	.5780		
Horseback riding	.5132		
Resort Activities		1.16	2.8
Playing golf or tennis	.6288		
Having good restaurants	.5529		
Shopping	.4808		
Resorts	.4522		
Amusements		1.04	2.5
Fun and enjoyment	.5238		
Visiting theme parks or amusements parks	.4281		
Total Variance explained			63.5.1%

Note: Respondents were asked to indicate how important each of the preference items was on a four-point Likert-type scale (1=not at all important; 2=not very important; 3=somewhat important; 4=very important).

TABLE 2
FACTOR ANALYSIS OF New Ecological PARADIGM SCALE

Preference	Factor Loading		Eigen-Value	Var. Expl.
Limits to Growth			5.02	33.5
The earth is like a space ship with very limited room and resources	.8023			
We are approaching the limit of the number of people the earth can support	.7373			
If things continue on their present course, we will soon experience a major ecological catastrophe	.5375			
The balance of nature is very delicate and easily upset	.4976			
Fragility of Nature's Balance			1.38	9.2
When humans interfere with nature it often produces disastrous consequences	.6823			
Despite our special abilities, humans are still subject to the laws of nature	.6560			
Humans are severely abusing the environment	.6342			
Rejection of Anthropocentrism			1.27	8.4
* Humans were meant to rule over the rest of nature		.7798		
Plants and animals have as much right as humans to exist		.6383		
* Humans have the right to modify the natural environment to suit their needs	.6074			
* The so-called "ecological crisis" facing human kind has been greatly exaggerated	.5035			
Rejection of Exemptionalism			1.03	6.9
* Humans will eventually learn enough about how nature works to be able to control it		.7330		
* Human ingenuity will ensure that we do NOT make the earth unlivable	.6762			
* The earth has plenty of natural resources if we just learn how to develop them	.5169			
* The balance of nature is strong enough to cope with the impact of modern industrial nations	.5063			
Total Variance explained				58.0%

Note: Respondents were asked to indicate how much they agreed or disagreed with each statement on a five-point Likert-type scale (1=strongly agree; 2=agree; 3=neither agree nor disagree; 4=disagree; 5= strongly disagree)

* Items marked with an asterisk were reverse coded because disagreement with these statements is an indication of agreement with the factor concept.

TABLE 3
CANONICAL CORRELATION ON PREFERENCE VARIABLES AND ENVIRONMENTAL ATTITUDES AND VALUES*

Predictor Variables	Variant 1	Variant 2	Variant 3	Variant 4	Variant 5
Environmental Attitude (NEP Scale) Factor Groupings					
Limits to Growth	-.276	**.448**	.001	-.047	-.078
Fragility of Nature's Balance	.220	.305	-.238	**-.454**	-.367
Rejection of Anthropocentrism	.043	**.413**	.108	-.142	.324
Rejection of Exemptionalism	**-.509**	.144	-.289	-.189	-.316
Value (LOV Scale) Factor Groupings					
Sense of Belonging	-.265	.058	**-.679**	.145	.123
Sense of Accomplishment	-.289	-.289	-.209	**.448**	-.323
Fun and enjoyment	**-.397**	-.373	-.097	-.278	-.017
Warm relationships	**-.392**	**-.433**	**-.394**	-.029	**.538**
Self-fulfillment	-.322	-.358	-.153	**.452**	-.150
Being well-respected	**-.423**	.124	-.068	.330	-.119
Excitement	**-.758**	-.270	.342	-.231	-.156
% of trace	13.800	9.600	7.700	8.300	6.800
Explained Variance (46.2%)					

Criterion Variables	Variant 1	Variant 2	Variant 3	Variant 4	Variant 5
Preference Element Factor Groupings					
Quality/Convenience	**-.551**	.032	.182	.309	-.091
Appreciative	.115	-.387	.282	**.655**	-.127
Relationship Building	-.376	-.377	**-.515**	.168	**.508**
Vigorous Outdoor Activities	.216	**-.651**	.052	**-.441**	-.248
Leisure Activities	-.308	.087	**.685**	-.341	**.451**
Resort Activities	**-.591**	.040	-.241	-.282	**-.524**
Amusements	-.241	**-.501**	.180	-.051	-.094
% of trace	2.0	1.0	0.8	0.7	0.3
Explained Variance (4.9%)					

* Not all variables used in the analysis are represented in Table 3. Only variables with a loading of .40 or better on at least one of the varieties or variables instrumental in the variegate interpretation are included.

TABLE 4
SUMMARY OF THE RELATIONSHIP BETWEEN PREFERENCE VARIABLES, VALUES AND ENVIRONMENTAL ATTITUDES

Criterion Variable Elements that attract visitors to pleasure trip vacation destinations	Associated Value on LOV scale	Associated Environmental Attitude (NEP scale)	Other Criterion Variables
Resort Activities Golf, tennis, restaurants, shopping, resorts	+ Excitement + Being well respected + Fun and enjoyment + Warm relationships	+ Rejection of exemptionalism	+ Quality/Convenience
Quality/ Convenience Ease, clean, maintained, good weather, quality service, convenience, good value, variety, travel experiences	+ Excitement + Being well respected + Fun and enjoyment + Warm relationships	+ Rejection of exemptionalism	+ Resort Activities
Vigorous Outdoor Activities Canoeing, rafting, bicycling, hiking, snow skiing	+ Warm relationships	- Limits to Growth - Rejection of Anthropocentrism	+ Amusements
Amusements Fun and enjoyment, theme parks, amusement parks	+ Warm relationships	- Limits to Growth - Rejection of Anthropocentrism	+ Vigorous Outdoor Activities
Appreciative Natural features or wonders, mountains, national parks or forest, fall colors, quaint towns and villages, restfulness and relaxation	+ Sense of belonging + Self-fulfillment	- Fragility of nature's balance	- Leisure Activities
Relationship Activities Familiar place, reward, rediscover self, togetherness, romance	+ Sense of belonging + Warm relationships	- Middle of the road	- Leisure Activities
Leisure Activities Hunting, fishing, children's activities, horseback riding	- Sense of belonging - Warm relationships	- Middle of the road	- Relationship Building

+ indicates a positive association with the criterion variable
- indicates a negative association

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CLASS LETTERS AND THE PEDAGOGY OF DISCLOSURE

by

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Language is the most powerful, most readily available tool we have for representing the world to ourselves and ourselves to the world. Language is not only a means of communication; it is a primary instrument of thought, a defining feature of culture, and an unmistakable mark of personal identity. Encouraging and enabling students to learn to use language effectively is certainly one of society's most important tasks.—Standards for the English Language Arts *(1996)*

> My students and I create a universe that is the university. *—Sandra Cisneros (1995)*

> Sometimes these letters bother me. I do like them, but it makes one really look at their weak side. I have a very hard time with that task. If people can be so real on paper, why can't they speak it also? This must be a sign of weakness. We are all afraid; therefore, we stay in our shells. I sometimes look at people, listen to them also, and wonder if they know who they are—I mean really know why they are, not just their name and their status. Many people think they do, but ask them; they won't have an answer. I am not any different. I do exactly what people expect me to, nothing more, nothing less. People don't expect me to take risks, so I don't, though I'm dying to. Why do we do all this following? If this is what life is all about why don't we just have a road map at the beginning of our lives and follow it? Seems to me this would be much easier.
> *—A student writer (1995)*

To call language "a primary instrument of thought, a defining feature of culture, and an unmistakable mark of personal identity," is to place the class letter at the center of writing pedagogy. Class letters can become a portal through which students and teachers can "create a universe that is the university." Writing a letter to her instructor, a struggling English 101 student wonders why she is afraid to take risks and wonders if others are too. For her, taking risks in her writing seems unexpected yet irresistible. She discovers that her personal and collective identity are poised between a constricted social environment and the larger reality of her writing.

From three distinct points of view, these texts speak of the powerful process of defining ourselves through language. In the context of writing class letters—letters between students and their instructor and between themselves—this defining takes on a sense of possibility beyond the limits of the traditional writing classroom. This study documents the writing of class letters in six freshman writing courses conducted between January 1995 and April 1997. The following questions were addressed: How can class letters affect student attitudes toward writing and writing instruction? Does letter writing affect student writing performance in formal essays? How can we characterize the class letter writing process and its outcomes?

Really a specialized version of journaling, class letters are what Elbow calls "freewriting with an audience." Students are instructed to write whatever is on their minds and to engage in a continuing conversation about writing. The teacher coordinates the process by editing the weekly letters and choosing those letters or passages that lend themselves to the topic of concern for that particular week. The student has the discretion to not use passages which are repetitive, inappropriate or otherwise (in the teacher's judgment) too private for use in the class letter. At the same time, the teacher must be "authentic" and assume the same risks asked of the other class members. As "classmates," all become members in an evolving community where letters generate and maintain a major portion of its very life.

At the end of the semester, students completed a portfolio, containing three sections: (1) Students were asked to write at least ten letters to the instructor during the course, and at the end of the semester to write a foreword describing the content of the letters and an afterward describing their value. (2) At the same time, students were instructed to write four essays (with multiple drafts) during the semester and at the end of the term to describe them in the same way as the letters. (3) In order to evaluate the overall instruction process, students were asked to add a third section describing the course's strengths, weaknesses, and areas for improvement.

Beginning with the spring 1997 semester, students were asked to write their letters on a class Internet website bulletin board. "Friends," as the bulletin board was called, provided students and instructor direct access to all their letters, and in so doing transformed the instructor's role from that of director or editor to one of fellow writer. In this electronic mode, all writers had a more direct sense of the composing process; opportunities for validation and membership were more immediate and perhaps less contrived than through the hard copy letters scripted by the instructor.

English 101: From Alienation to a New Vision

Students might agree with the characterization of English 101 as a linguistic wasteland populated by bored freshmen required to clone themselves using the fabled five paragraph essay. Even more recent efforts at adapting the "delivery" of English 101 to the Internet have only served to bolster the mechanical, remedial image of a course that seems devoid of thought or emotion. Writing is often regarded by college freshmen as an alienating activity, performed outside any community and under the guise of communication for the sake of graduation and subsequent employment (Bleich, 1995). Classroom writing, under these conditions, can assume the lifeless pretense reportedly described by John Dewey: "There is a difference between having something to say and having to say something."

In the myth retold by Albert Camus, Sisyphus is condemned by the gods to roll a stone up a mountain, only to have it slip from his grasp just short of the summit. Despite this impossible task, Camus insists that "one must imagine Sisyphus happy" (Camus, 1955). One could gather from his view that writers—and particularly beginning writers—scarcely start penning their words before they are doomed, like Sisyphus, to reinvent their drafts all over again. This motif, summarized by Zinsser (1985), has been echoed in the major writing handbooks (Holt; Borzoi; Little, Brown; Riverside) used in freshman courses. Writing has three major characteristics: (1) it is an endless process and never completed; (2) it is an extremely difficult task requiring the total energy of the writer; and (3) it is a solitary activity, separating the writer from society and requiring a monklike devotion to this craft. From this endless, difficult, and alienating pursuit, the writer—against all odds—might produce a chiseled manuscript worthy of the gods, or at least a stern professor, guarding the linguistic gate with red pen in hand.

Despite more recent efforts at change, the Sisyphean model has not receded from college writing classrooms. Certainly it works as a metaphor for the process model with textuality eternally in a state of becoming. This model has been extended to a concept of the discourse community (Kinneavy, 1971). The classroom serves as mediator between the "private" self of the student and the "public" consciousness represented by the teacher. In this "safe zone" teacher and student negotiate the conditions of membership. Writing pedagogy now regards essay assignments as a series of progressively challenging pieces that advance the writer's "authority" from the private narrative to the semi-public arenas of exposition and argument. But unlike the older "product" model where the student was expected to model patterns of excellence and work his or her way to the pinnacle of academic knowledge, the newer "process" model regards all knowledge as an extension of the student's expertise into more knowing and comprehensive zones within the writer's expanding ability (Elbow, 1981). While this subtle difference might be skipped over, it is one in which the teacher becomes less of an authority than a consultant or coach. It is Sisyphus, but with a mentoring emphasis.

Referring to Foucault's interpretation of classical tradition, Curt Spellmeyer points to an alternative vision: "a knowledge to be lived, within whose contours we are empowered to construct both a self with others and a social world large enough to accommodate our individual differences" (Spellmeyer, 1993, p. 87). Rather than accept as given a world order in which we are defined both in terms of our social and our linguistic roles, Spellmeyer suggests a more dynamic pedagogy:

> Teachers of writing—long allied to the illusions of an order that precedes investigation, a clarity that conceals the adventitiousness of thought, and a diction so primly mannered that it has abandoned the spoken word—might do well to consider which version of knowledge we would prefer to advance, and which form of "relationship with the self" we shall choose to promote in our classrooms. We might ask, as well, which version of knowledge is most likely to make writing an "art of living" for our students at a time when writing has become, if not less important, then more mechanical, more pointlessly a repetition of the Same, than ever before (p. 87).

The Pedagogy of Disclosure

In the college writing classroom, class letters can be instrumental in bringing students and instructor into significant conversations about writing and the very terms of engagement. Under the pedagogy of disclosure described by David Bleich (1995), class members—student and teacher alike—enter into a new relationship in which the terms of membership are themselves transformed. The process of communication—sharing and developing mutual goals—can become the shaping agent for educational and lifelong change. "If not now, when?" becomes the new credo.

One January day, as the snow was blowing outside my study window, I wrote a letter to my writing students. As the conversation proceeded, I thought it useful to introduce the pedagogy of disclosure:

> Now the snow has picked up velocity and has started swirling madly into my window panes, trying to invade my warm cocoon. So let's turn to the private-public conversation. Some of this discussion crosses paths with writing trouble spots. Lisa, in what appears to be her public letter for all of us, feels that I am a good judge as to what the whole class would like to know. She adds: ". . . if the students are able to write something to you, knowing that these letters are really for the whole class, they should be able to share them with the whole class." With one clear exception: Lisa thinks people "who really are just writing for your eyes only" should request that I don't share this with anyone. That's true, Lisa. I use judgment, but my sensitivity may be flawed. I'm that mediating audience that stretches or retracts for you. I'm assuming you can trust me, but I'd rather you trusted yourselves and worked more independently of my nurturing care.
>
>> *Jason:* Sometimes I take a lot of risks and a lot of the risks come back and haunt me. I guess this all happens to everyone. A risk to me could be different than a risk to someone else. Let's try this one: I have been skydiving twice; this to me at the time was risky. But someone else may say this was not only risky but stupid! That is my point. When you say risks I take that in the context it's in. I had fun but it was risky. I have taken many [which have] been thrown back in my face. If I had to do them all over, I would probably do the same things.
>>
>> *Jennifer:* I am not afraid of the public. I doesn't matter to me what other people think as long as I like it. But some people are messy about it and I think no one should be pressured into going public. I think with a little time and support everyone will at least be able to go semi-public.
>>
>> *Kim:* The issue of how much to disclose about yourself depends on the person. I learned in one of my classes last semester that girls disclose little bits of information that the other person discloses to them. That is how girls can say who is their best friend because she has more than likely told her almost everything about herself. . . . With guys it is different. They are more revealing on the basis of hobbies and interests. Their best friend is the one that he shoots hoops with or rides bikes with.

> Some new information might be helpful at this point. David Bleich, who teaches English at the University of Rochester, believes that mutual self-disclosure on the part of every class member can bring otherwise alienated people toward dignity and understanding, and can forever change the curriculum. Under these conditions of trust, a "pedagogy of disclosure asks each class member to announce, sooner or later, the *terms of membership* in the class. . . . Such an announcement could include . . . the histories of one's family, school, ethnic, gender, as well as one's vocational and economic reasons for choosing courses, one's clothing, eating habits, and travels, one's aspirations, fantasies, values, and plan. These announcements are understood to be continuous yet paced comfortably for each individual's level of involvement in the class" (p. 48). Bleich's idea is that writing in a community can help bring people's lives and their work together, instead of separating personal lives outside class from formal work assignments. Writing, like other academic work, has traditionally been a solitary activity. Instead of motivating people through the hope of future employment, why not motivate them *now*, through real, extended, and thorough recognition? He adds: "A pedagogy of disclosure can help to teach students to demand nonalienated work, to make their work more a part of their identities, their identities more connected to others, and their vocations more palpably implicated in society and in other people's needs" (p. 49). So we become partners, and in so doing we become part of one another and more whole as individuals. David Bleich's words are rather academic in tone but they do have a ring of truth.
>
> So instead of running away from the personal, let's embrace it. Let's get to know each other fully and at the same write more knowingly both of our individual and our collective selves.
>
> How does this translate to our next assignment, an informative essay? We can, if we wish, explain something personal—why did I like storytelling as a child then lose it later? What is it about fishing that is so special? Your letters and mine contain gold mines of leads which can be expanded into extended conversations. We are each other's teachers. May we all so learn.

The pedagogy of disclosure, through the intervening and enfolding use of the class letter, can bring students into the community of writers, taking them away from writing as alienating work and into a world of mutual respect and support. As a motivating vehicle, class letters can encourage a climate of incremental risk where the self is revealed both to the reader and the writer. In the ensuing process of validation, students gain authority over their writing, a process that extends into their more formal assignments.

This improvement of the constructs in writing has been documented through the literature on student journals (Fulwiler, 1987), and through extensive anecdotal testimony from writing students. Here is a sampling from students writing in their portfolios:

> These letters have really been a great help in my writing. I normally don't write very many letters, but this class has gotten me started. The letters that you wrote to us have helped me hone my writing skills also. The letters from my classmates were outstanding. It was an outstanding way to get to know about my classmates, and see their different writing techniques.
>
> The letters allowed me to write. That is the key. They also got me looking forward to getting new letters from my classmates. They were all interesting. Your letters were also a big help.
>
> The dear Roger letters were a great idea that served many purposes. First of all, they got us writing. They allowed the class to feel closer to one another. Most important, the letters served as a link, from the student to the teacher.
>
> In all of the letters, including my own, I can see how the class developed a better sense and style of writing. It is very plain that as the class went on, we gained in confidence and skill and, as we came to know one another better, camaraderie. The writing of these letters became very important to me. It was my way of letter you know what I thought and how I felt about the writing assignments and also just my life in general. You got my mind whirling, and who knows where I'll go from here?
>
> I feel that this portion of our class work was very instrumental to making the class so enjoyable. Through these letters we have all grown closer than we would have without them. Most classes are all composed of strangers being led through the course material, but with these letters we all learned enough personal information about everyone else that we all felt comfortable with each other. Earlier in the semester I stated that these letter made it seem like we were a room full of pen pals rather than strangers, and that seems to be the closest thing to the truth. Thank you for showing us how fun writing can be.
>
> I enjoyed the letter writing for this class. This was a nice way to get to know the other students. My grammar skills are not as good as I would like them to be; therefore, I was reluctant to write. I know people judge us by how well we speak and write. Writing letters to an English teacher was at times intimidating for me. When I was writing letters to friends or family, I realized that each letter probably could have been

> written better if I went back and did some revising. Reflecting on letter writing I now realize that it is a valuable way to keep our minds active by putting our thoughts and ideas down on paper. We may not write essays every week, but we can write letters to family and friends.

English 101: Continuing Problems

The teaching of writing as "process" sought to empower individual writers. Suggesting that "authority" came from within the writer rather than from stretching to some external power, the freshman writer could—in successively more confident drafts—achieve oneness with her or his inner "voice." As the writer experiences success with an audience, even a "semi-private" classroom setting, the authority base expands to meet new writing challenges (Elbow, 1981). The pedagogy of disclosure, through use of class letters, can move writers beyond self to an expanded awareness of their cultural identity—meaningful communication with others, "having something to say."

English 101 has taken the brunt of the criticism both inside and outside the academy for producing students who are inept at structuring sentences, thinking logically, and otherwise functioning at the most elementary level in reading texts or responding to prompts. A recent survey of the faculty at Black Hills State University (March 1996) revealed that an overwhelming percentage (99%) thought writing was important to students as they learn to think and work in their discipline. However, only a small minority (9%) believed student writing at the University currently demonstrated sufficient writing competency. The majority were divided into two groups: those who were undecided or neutral on the issue (46%), and those who did not believe student writing demonstrated competency (45%). A resounding majority of faculty (94%) believed that the University should place additional emphasis on developing student-writing skills. While this local observation might lack larger validity, one suspects a similar perception exists elsewhere in the academic community. Apparently, we are far from recognizing in the writing classroom the potential of language as "a primary instrument of thought, a defining feature of culture, and an unmistakable mark of personal identity."

Conclusion

Class letters, through the pedagogy of disclosure, can: (1) foster a sense of community, vital to student writers; (2) link private, semi-private, and semi-public modes of discourse; (3) encourage students to experiment with voice; (4) relate teacher and student as writers and human beings, transcending traditional classroom roles; (5) model both teacher's and student's writing in a dynamic, interactive process; (6) establish personal lines of communication (personal asides) which can assist or coach the formal writing being assigned; (7) build trust in the classroom, a major prerequisite to learning; (8) reaffirm the human side of teaching and learning, all too often lost in classes whose numbers exceed desirable limits; and (9) emphasize learning as interactive between teacher and student, and student and student. The class letter can invite students to enter a self-contained universe that evolves into the university. "Students in the writing classroom," Halden-Sulliven (1993, p. 54) observes, "bespeak their condition, not so much as mirrors reflecting an external world from which they stand apart, but as voices of their world's being, emitted from within that world."

Beginning college students often approach the writing classroom with attitudes of fear and alienation. Letter writing can help these writers extend their private selves, affirm their identities, and connect to a larger audience. Class letters also help establish an authentic connection between teacher and student, where the teacher can fulfill the role of a mediating audience through which students can test their authority and negotiate their otherness. Students can also relate with each other in cooperative and noncompetitive ways as writers in a writing community.

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GEOGRAPHICAL EDUCATION: A CURRICULUM ANALYSIS

by

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As one result of the National Geographic Society 1988 Survey which showed (to say the least) problems with the geographical knowledge base of many Americans, the subject was given an impetus towards the stature it once held in academia here. Regular meetings of governors saw the need for geography expertise in a country, which must be a vital component of any international perspective. The cliché about a "shrinking world" in terms of communications, etc. is an undeniable fact. Edward Patrick Hogan, South Dakota State Geographer refers to the situation facing our discipline in his soon to be released work entitled, "The Geography of South Dakota," with:

> The fact that most Americans are unaware of what geography really is does not surprise the geographer. For years, geographers have been warning the nation that the American people have become geographically ignorant of the world in which they live and where they compete for survival. In fact, the last major geography of South Dakota, by Stephen S. Visher, was in 1917. Fortunately, the Congress of the United States, the president, the nation's governors, corporate America, and boards of education have taken or are taking steps to restore geography to its proper place in the nation's schools. (The Center for Western Studies Book and Art Catalog 1996-97, p. 2)

Education 2000 (now Goals 2000), although it may go the way of the dinosaurs, has led to a number of disciplines proposing standards which may be used as guidelines in their fields. Unlike E.D. Hirsch and his information base, which proved to be so controversial, the various standards have been easier to swallow, although the history personnel may disagree with such a statement.

"Geography for Life: National Geography Standards 1994" has generally been a refreshing entry into the geography sweepstakes. This work formed the foundation for a new subject which was taught at Black Hills State University in the fall of 1995--Geographic Education. Whilst the instructor's expertise is in curriculum and instruction, and geography makes up an important component of that portfolio, it was still uncertain how broad such a course should be. There was little written material which could be used as a map to follow, although, Gail Ludwig's "Directions in Geography: A Guide for Teachers" (1991) offered some valuable insights.

In other words, the course represented one of those learning experiences which will, no doubt, change dramatically with time. Using a new curriculum as a guide, the chosen approach follows. The format represents a mixture of material gleaned from initial courses taught in tertiary education with the College of Education and as a result of requirements now stipulated by the College of Business and Public Affairs, to which the single member geography department belongs. As a result, individual autonomy is virtually guaranteed, even though this means that only one upper division course is a possible option each semester. Pressure exists to concentrate on the larger numbers and, therefore, more lucrative basic or general education courses such as World Regional and Introduction to College Geography.

After locational details, required texts (a misnomer) appear in the guide, even though there does not appear to be a suitable textbook on the market. As a consequence, the National Geography Standards: 1994 was chosen for review purposes, along with the ubiquitous Goode's World Atlas. Next come general information, rationale, references and the proposed schedule, with these topics making up the meat of the course.

1. Geographic Thought and Practice

   Components of this section include value of the discipline, skills (incorporating newspaper articles), concepts, careers, and appropriate definitions.

2. Historical Development of Geography

   Found here are historic background, Four Traditions and the Five Themes (overlays from the TC Toolkit are used to illustrate these ideas).
   The National Geography Standards represent an integral component of the course, with a great deal of discussion centered on them. In fact, the midterm examination consists of an essay question based upon the book , which is one contribution towards fulfilling the aims of the National Council for Geographic Education (NCGE) as stated in a letter from Executive Director Ruth Shirey in the Fall of 1995 to the membership saying "One of the most important goals of the NCGE is implementation of the 1994 National Geography Standards." She proceeded to list some of the initiatives being used.

In Update from Spring of 1995, Roger M. Downs said that choices for the new Standards were based on the integration of an understanding of subject matter with skills and perspectives. He pointed out that the best experiences from other countries would be included with this target—"The goal is simple: to create a geographically informed person, someone who understands people, places and environments from a spatial perspective, someone who appreciates the interdependent worlds in which we all live" (pp. 1, 8-10).

In order to link the Standards with the Five Themes, Kit Salter, et al. wrote a booklet called, "Key to the National Geography Standards" which is seen as a tool for utilizing the standards in a classroom while still focusing on the various themes. While there are numerous excellent reviews and prognoses relating to the Standards, Susan M. Gay contributed these words in her abstract found in the Journal of Geography (July/August 1995):

> The Standards will provide teachers with a geographic perspective that will enable them to teach improved geography content while building geographic skills and knowledge that will benefit their students for the rest of their lives. By taking a fresh look at the content in the curriculum from a geographic perspective, teachers can make connections between the Geography Standards and our own classrooms. (p. 459)

3. Viewpoints in Geography

This section includes humanistic, socio-cultural, and historical perspectives, plus alliances and conferences. The use of cartoons is emphasized.

4. Methods of Geography

Maps (including mental), Geographic Information Systems (GIS), Global Positioning Systems (GPS), together with numerical and quantitative examples of this field are incorporated here. At this point individual knowledge is sought from the Where in the World card game and relevant group presentations begin.

5. Geographical Themes

Geographical areas are stressed in this segment of the course, such as cultural, regional, urban, and physical. One theme resulted from the Seeds of Change exhibition held in the Smithsonian Institution museum in Washington, DC during 1992 for the Columbus sesquicentenary.

6. Technology

The wise and competent use of audiovisual equipment and computers is the focus of this area. CD ROM materials and specific software programs like Maps and Facts and PC Globe are also utilized.

7. Suggested Methods for Teachers

Since the course has a teacher preparation emphasis, students are required to undertake a Lesson Plan/Field Trip assignment at this juncture. Various lesson plan styles are discussed, with particular emphasis on "The Tamarack Tree" (Patricia Clapp) as an example of a literature unit.

8. Internationalization

A world perspective provides a connecting thread throughout the whole course, with the following quote summing up the position of geography:

> ...in today's highly interdependent world a liberal education should develop in each individual the realization that his or her own country, region, and ethnic, religious, social, or linguistic group are but one among many, each with differing characteristics, inferior or superior, and that one cannot see one's own country and culture in perspective until he or she has studied other lands and

> countries. Geography has a key role in developing such an understanding. (Summary, Geography and International Knowledge)

9. Changing World

World problems and locations represent two of the fields covered in this section which attempts to keep up with current trends while making a prognosis for the future.

The latest Annals (1995, September) leads off with an article from the President and Chairman of the National Geographic Society, Gilbert M. Grosvenor, which serves as an ideal summing up of the challenges facing the discipline of geography and some of the steps which may be taken to alleviate the problem. The author of "In Sight of the Tunnel: The Renaissance of Geographic Education" discusses progress made while highlighting the contributions of the National Geographic Society. In the abstract the opening paragraph states:

> The National Geographic Society's effort to improve American geography education began in the mid-1980s, fueled by surveys and other evidence of an alarming lack of geographic knowledge among young people. The Geography Education Program has been a multi-pronged campaign that supports, trains, and empowers teachers to make a difference in their own states. (p. 420)

We can and will make a difference if the beam from our lighthouse prevents more people from smashing into the rocks of mediocrity.

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USING HYPERCARD TO CREATE CLASSROOM MANAGEMENT CASE

by

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Abstract

Research and related literature support the use of case studies and computer technology for instruction. Using the computer program, HyperCard, offers a viable method for instructing preservice and practicing teachers in classroom management skills.

Worn out, burnt out, or just plain depressed are psychological conditions which affect the investment of teachers in the success or failure of their students (Stephenson, 1990). The state of a teacher's psyche may well be shaped by the daily intercourse with students in activities or actions, which are managerial rather than instructional in nature. Classroom behavior management has been a concern for both preservice and seasoned teachers. The effective techniques employed have been more the result of infield trial rather than instructional preparation.

Classroom behavior management skills have been a desired learning objective for many years by preservice teachers. With few exceptions classroom behavior management skills have not been a training possibility within the traditional university environment. Practicing behavior management skills in school classrooms meets resistance from administrators and parents, as they are not eager to have their children used as practice subjects by university students.

Development of classroom behavior management skills by practicing teachers is similarly difficult to arrange and assess. Teachers engaged in the daily activities of teaching are inclined to function on a survival mode rather than in a skills development mode. Observing and coaching such teachers is generally well outside the possible time allotments of administrators or mentor teachers. Inservice programs to assist teachers in classroom behavior management also fall short in singular instruction, lack of continued assessment, and guidance.

To address these deficiencies in developing classroom behavior management skills by preservice and infield teachers, an approach using interactive computer technology is proposed. Through a nonlinear decision-making, case study program, students select appropriate behavior management interventions and receive assessment of their choice. Each case study is based upon actual classroom situations and the response options are actions which have been observed as employed by teachers in the field (Latham, 1995). The appropriate response for each decision making situation is based upon behavioral research and infield testing.

Human behavior is lawful even though the "laws" used to predict behavior can only speak to the probability of a predicted result or outcome (Sulzer-Azaroff & Mayer, 1991). In spite of this limitation several general principles or theories regarding human

behavior do exist and they can predict events with a high level of probability (Sulzer-Azaroff & Mayer, 1991). Three of these theories are described by Latham (1992):

1. Behavior is strengthened or weakened by its consequences;
2. Behavior ultimately responds better to positive than to negative consequences; and
3. Whether a behavior has been punished or reinforced is known only by the course of that behavior in the future.

It is beyond the scope of this paper to address each of the aforementioned elements in detail. A sampling of the research which supports these theories is provided for clarification.

Research has demonstrated that the most effective way to reduce problem behavior in students is to strengthen desirable behavior through positive reinforcement rather than trying to weaken undesirable behavior using aversive or negative processes (Marsh & Barkley, 1989). Furthermore, frequent teacher attention in the form of praise is more effective than rules or teacher reprimands for increasing appropriate student behavior (Bijou & Ruiz, 1981).

In spite of these findings research describing the quality of teacher-to-student interactions demonstrates that those interactions are overwhelmingly negative in public school settings (Latham, 1985). Negative teacher-to-student interactions tend to be at least two times as frequent as positive interactions (Latham, 1985; 1992). In fact, ninety-eight percent of all on-task behavior generally goes unnoticed by the classroom teacher (Latham, 1985, 1992).

Research conducted by Latham (1992) identified seven negative traps into which teachers often fall during their classroom management. It was found that these traps subvert the use of effective intervention strategies and result in negative teacher-to-student interactions, which in turn, actually increase the frequency and duration of the undesirable behavior. These negative traps include:

- Criticism
- Pleas to the Student's Common Sense
- Questioning Students about their Inappropriate Behavior
- Teacher Sarcasm Toward the Student
- Displays of Teacher Despair and Subsequent Pleading
- Threats
- Fear and Coercion, and sometimes even
- Physical Force

Obviously teachers should not fall into these traps. Likewise teachers should use positive reinforcement instead of punishment and coercion to manage their classroom. To assist teachers in their professional development and to apply the principles of human behavior to classroom teachers require training and assistance. Research on skill training demonstrates that for education to be effective it should be demonstrated in the setting in which it is intended to be used, or in a simulated setting which provides the opportunity to discover, apply, interact, and most importantly, to make mistakes and to review the concepts which the trainees (teachers) relied on during their decision making (Halff, Holland & Hutchins, 1986).

Structuring a simulated setting and review of decision making performance is possible through the use of sequenced nonlinear decision making programs such as HyperCard, Linkway, or HyperStudio (Spencer, 1990).

Niemiec and Walberg (1989) have outlined the historically successful use of computer technology to assist instruction. Sidney Pressey of Ohio State University based an instructional design of sequenced learning upon the work of Skinner and Thorndike with great success. Through the law of effect, law of recency, and law of exercise, computer assisted instruction has the potential of simulating a decision making environment with immediate assessment of the decision and further reinforcement of the correct response. All these factors are congruent with effective instruction Niemiec and Walberg (1989).

McGuire and Babbott (1967) assert that establishing a system of instruction which provides individual interaction with the learning environment through simulation has merit for training skills in problem solving. It is certainly logical that within the educational field classroom behavior management is a test of the teachers ability to problem solve.

Decision making requires a variety of options for the employment of judgment. Options are nonlinear in nature requiring the possibility of error and restructuring of the scenario to allow a positive outcome from the judgments (Breke, 1982). Breke establishes the model for judgment training which is applicable to other fields including the role of the teacher as classroom manager (Bransford, J.; Sherwood, R.; Vye, N.; & Rieser, J., 1986).

The decision making process which develops judgment is incorporated into the model of personalized systems of instruction (Kulik, J.A., & Kulik, C. C. 1975). Through individual application of attained content and concepts the learner exercises choice by making selections based upon reason and logic.

The success of such decision making lies in the relationship the possible choices have to daily experiences. Cole, Lineberry, Wala, Haley, Berger, & Wasielewski's (1993) study indicated that the test subjects believed the simulation exercises related closely to realistic problems which would help them remember critical knowledge and skills. Simulations provide a controlled environment which provides for choice, yet guides the learner toward developing skills and knowledge essential for analysis of data to solve specific problems.

Simulation exercises have also been used successfully in other disciplines (Cole, Lineberry, Wala, Haley, Berger, & Wasielewski, 1993). Application of computer assisted instruction in the health services field has held substantive results for those engaged in the learning process (Dugdale, Chandler, & Best, 1982; Jones & Keith, 1983; Spencer, 1990). The military and air transportation industry have also incorporated the computer for instruction through simulation programs which provide personalized systems of instruction for problem solving and judgment training (Breke, 1982).

The literature reporting research related to mastery learning indicates that the repeated testing component of mastery learning pedagogy is an effective methodology to increase student knowledge and performance (Martinez & Martinez, 1992; Decker, 1990). When embedded testing, carefully contrived questions within a reading which assists the learner to interact with the processing of information and concepts is used, significant achievement is also observed (Cole, 1994). The literature would then support the pedagogical approach of frequent testing with learner interaction, selecting the route to specific learning objectives.

Development of Personalized Systems of Instruction (PSI) linking embedded testing and simulation was shown to be an effective instructional approach in the medical field (Cole, 1994). The implementation of a PSI and mastery learning has hinged on the extensive management required of the instructor (Decker, 1990). Immediate feedback is an important feature of PSI's successful methodology and, under normal circumstances, that is a very time consuming operation (Kulik & Kulik, 1975). Incorporating computer technology presents a reasonable solution to this problem.

Computer technology has been used with great success in delivering Personalized Systems of Instruction with the necessary evaluation feedback being instantaneous and continual (Jones, & Keith, 1983; Laszlo & Castro, 1995; Niemiec, Blackwell, & Walberg, 1986). Synthesizing the strengths of immediate feedback of computer aided instruction with that of the interactivity using simulations places a very powerful tool in the hands of the learner and instructor.

Using the nonlinear capabilities of HyperCard stacks and applying free choice options to the instructional methodology of Personalized Systems of Instruction there is a capability for the learner to master content and skills at a pace most individually appropriate. Using embedded questions in a simulation exercise permits the learner to investigate the content and skills necessary to make a decision which will bring closure to the problem. As the learner progresses through the simulation and responds to the embedded questions, judgment becomes an essential skill, which is developed by nature of realistic problems. Completing the simulation the learner has encountered information, evaluated it and taken appropriate steps to solve the problem presented. Immediate and continual feedback by noting the consequences for the choice made is a fundamental capability of computer assisted instruction.

Based upon the literature reviewed, an effective method of teaching classroom management skills to preservice and practicing teachers is through case studies using simulations on a computer terminal. Establishing a scenario of a classroom situation which requires specific management techniques the learner proceeds through the case study by selecting an intervention, as presented as an embedded question, judged to be the most likely effective action taken to bring closure to the management problem. If the learner selects an ineffective intervention an immediate result is noted with an explanation why that intervention will not solve the management problem. An opportunity to select a different intervention is offered to the learner and the cycle repeats. If the learner selects an action, as based upon research, which will be effective to solve the problem, the learner observes the immediate result of the action with the problem being resolved. The learner then moves to the next classroom management case study.

The application of computer assisted instruction using case studies of classroom management simulations offers an effective way for preservice and practicing teachers to gain knowledge and skills necessary for effective classroom management. Judgment, knowledge, and skills are each developed in a realistic problem solving form.

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1997 Research and Scholarly Work Symposium

EFFECTS OF AN EXPLICIT REFLECTIVE WRITING STRATEGY ON STUDENTS' CONCEPT DEVELOPMENT AND ATTITUDES TOWARD SCIENCE

by

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ABSTRACT

This study examined the effects of an explicit reflective writing strategy on changes in scientific attitude, concept mapping, reflection, and concept understanding of pre-service elementary teachers. The treatment group completed explicit reflective-writing sheets prior to writing reflective essays which prompted them to address strengths and weaknesses, ask inquiry questions, develop hypotheses, and make modifications to their maps. The control group received identical instruction as the treatment group but wrote reflective essays without the explicit sheet. All students completed five reflective essays as well as a reflective writing exam. Students in the treatment group demonstrated significant gains in conceptual understanding, concept mapping ability, reflective writing ability, and scientific attitudes compared to the control group.

Introduction

A primary goal for science education is to engage students in an active and enjoyable process of identifying, constructing, and modifying more meaningful understandings of science concepts. A science concept can be defined as scientific knowledge that connects and explains an idea. Concepts can be distinguished from facts by the degree of connectedness. Consider a brief description of the concept of natural selection which makes connection to abiotic factors, biotic factors, and evolution:

> Natural selection is a mechanism that enables some members of a species to pass on their genetic information to their offspring while selecting against other members. This process of selection can be attributed to abiotic and biotic factors present in the environment. Natural selection is at the heart of evolution.

In contrast, a science fact is an isolated bit of scientific information. For example, "the sun is 93 million miles away from the earth." Learning only facts leads to inert knowledge that cannot be applied. A physician cannot expect to make an accurate diagnosis having memorized the definitions of various diseases. A scientist cannot expect to solve an environmental problem without integrated conceptualized knowledge of ecology.

National reports indicate that a majority of students possess a very limited understanding of science concepts, poor critical thinking abilities, and tend to like science less and less as they move from elementary to middle school to high school (Weiss, 1989; Mullis & Jenkins, 1988). Thus, science teachers must shift toward the use of instructional strategies and curriculum that facilitates the development of meaningful ideas, critical and reflective thinking skills, and a sustainable appreciation for an interest in science.

The power of reflection as a tool for improving teaching, problem solving, and concept learning has been encouraging (Baird, et al. 1991; Coleman, 1992; Kilbourn, 1991; Russell, 1993; Williams, 1992). Further, there is a growing body of research that cognitive-strategy training, in which subjects are taught to employ specific cognitive behaviors associated with a particular task, leads to improved performance (Duffy, et al. 1987; Holliday & Barden, 1993; Lavoie, 1993; Symons, et al. 1989). Research is needed to investigate the effects of such explicit cognitive strategy training on students' abilities to engage in the process of reflection.

Purpose

The purpose of this research study was to investigate the effects of an explicit cognitive-training strategy for reflective writing relative to:

1) Changes in students' conceptual understandings and attitudes toward science learning/teaching.
2) Changes in students' concept mapping scores.
3) Changes in students' reflective-writing abilities.
4) Student feedback concerning the use of the reflective writing.

METHODS

Subjects

Subjects of this study were two sections of 56 elementary post-secondary education majors (Section One, N=27, 85% female; Section Two, N= 29, 83% female) enrolled in a required university content course in physical and biological science. This course is normally taken during the sophomore or junior year as part of the content core of the teacher-education program.

Course

The four credit semester-long content course involved laboratory activities, lecture, and readings in physical and biological science. The laboratory sections emphasized hands-on scientific inquiry experiences that complemented material covered in lecture. Five content units were taught during the semester in the following sequence: ecosystems, life cycles, cellular metabolism, genetics, and energy. Content exams were given at the end of each unit. Each section completed concept maps and reflective essays about each unit.

Treatment and Data

Section Two was randomly designated to the treatment group and Section One became the comparison (control) group. Both groups received identical instruction in content, laboratory activity, and concept-map construction.

An explicit reflective-writing sheet was developed to elicit reflective thinking behaviors relevant to the process of concept mapping. The sheet prompted students to ask questions, analyze relationships, develop hypotheses, and suggest modifications about their maps. The treatment group wrote about their concept maps using the explicit reflective-writing sheet. The control group also wrote about their concept maps but without the sheet. The control group was given instruction to write a reflective essay about each unit's map that discussed its general appearance, criticized and analyzed strengths and weaknesses, asked questions, made hypotheses about new connections, and discussed any modifications. For each unit, students in the treatment group were required to fill in the reflective writing sheet prior to writing the reflective essay. Following reflective writing, students in both the treatment and control groups were required to make any modifications to their maps using a different colored pen which visually contrasted the extent of post-reflective modifications.

To determine whether or not students in the treatment and control group changed in their abilities to engage in the reflective process, all students took a reflective essay exam on the ecosystem concept map. This exam was given to both groups at the beginning and end of the course with the same instructions to write a reflective essay about their map which discussed general appearance, criticized and analyzed strengths and weaknesses, asked questions, made hypotheses about new connections, and discussed any modifications.

All students were given a pre- and post- science attitude questionnaire to determine changes in attitudes toward learning science, teaching science, and doing science experiments. All students were given a 20 point multiple-choice pre- and posttest to assess conceptual knowledge of the science subject content covering all five units with four questions from each unit.

Data Analysis

The pre-tests and posttests for conceptual knowledge and scientific attitudes of the treatment and control group were compared using unpaired two-tailed T-tests. Students' concept maps and concept map exams were assessed using criteria modified from Wallace and Mintzes (1990). To achieve greater scoring reliability, two science educators jointly scored each map and the average of each subscore was summed to result in a final student concept-mapping score.

Students' reflective essays were assessed on the degree to which they critically analyzed their maps, asked inquiry questions about their maps, posed hypotheses to answer questions posed, and made modifications to their maps (20 points maximum). Unpaired two-tailed tests compared the treatment and control groups' reflective essay scores for each unit. Unpaired two-tailed T-tests were used to compare the reflective essay exam scores at the beginning and end of the course between and among the treatment and control groups.

RESULTS

Data from several sources (student pre/post measures, reflective-writing scores, and concept-mapping scores) provided collaborative evidence that explicit reflective writing had a significant and positive impact upon students' learning science and their attitudes toward science compared to the control group.

T-tests comparing treatment and control groups' pre-test scores for content knowledge and scientific attitude showed no significant differences suggesting the groups were equivalent at the beginning of the semester. T-tests comparing post-content knowledge and post-attitude scores indicated significantly higher content scores ($p > 0.05$) and attitude scores ($p > 0.01$) for the treatment group compared to the control group.

As would be expected, both the treatment and control groups showed significant gains in content understanding from the pre- to the posttests ($p>0.01$). Both the treatment group and control group showed significant gains in attitude ($p>0.05$). T-tests comparing pre-/post-attitudinal survey scores for each question item for the treatment group identified four items dealing with understanding science that significantly changed in the positive direction. T-tests comparing pre-/post-attitudinal survey scores for each question item for the control group identified two items dealing with understanding science that significantly changed in the positive direction.

The student concept maps provided a visualization of how a student's knowledge was organized (i.e., cognitive structure). This commonly involved terms (nodes) that were connected to other terms in some hierarchical manner by propositional statements describing the relationship between such terms. In essence, concepts became defined by connections or relationships between terms. T-tests comparing the treatment and control groups' concept-mapping unit scores showed significantly higher scores for the treatment group compared to the control group for each unit of study ($p>0.05$). T-tests comparing reflective-writing essay scores between the treatment and control groups showed significantly higher reflection scores for the treatment group compared to the control group for each unit of study ($p> 0.05$).

T-tests comparing initial and ending reflective-writing exam scores for ecosystems between the treatment and control groups showed no significant difference for the initial exam but significant gains in reflective ability for the treatment group at the end ($p>0.01$). T-tests comparing initial and ending reflective-writing exam scores for ecosystems within the treatment and control group showed significant differences for both groups with the treatment difference being highly significant ($p>0.01$).

Feedback questionnaires indicated that most students found the reflective-writing experience to be invaluable for identifying missing ideas and extending their overall understanding of the concepts involved. Some students felt reflective writing was too time-consuming, too difficult to grade, and would not transfer to the elementary classroom where many students can't write. A few suggestions were made for improving and applying the reflective-writing strategy.

CONCLUSION

This study has provided evidence that explicit reflective writing leads to significant changes in students' science content understanding, concept mapping ability, reflective-writing ability, and scientific attitudes. These results agree with more general studies which also suggest that providing students with explicit cognitive behaviors during problem-solving tasks, leads to improved performance (Duffy, et al. 1987; Holliday & Barden, 1993; Lavoie, 1993; Symons, et al. 1989).

The explicit sheets enabled students to reflect at a higher level initially as well as later when the training wheels were removed. This could be explained according to schema theory in that the sheets initially provided a "scaffold" or "training wheels" which enhanced performance and facilitated reflective behaviors that were incorporated or schematized in the cognitive structure. In information-processing terms, the sheets enabled students to experience the cognitive behaviors and cognitive pathways of reflective thinking. When the sheets were removed at the end of the semester students could still carry out the appropriate behaviors of reflective writing as they had ingrained within the cognitive architecture the necessary nodes and pathways of successful reflection. Further, the explicit cognitive strategy allowed students to realize gaps and inconsistencies in their knowledge and to remedy these deficiencies to some degree as evident through changes to their concept maps. Relative to Ausubel's theory of memory structure (Ausubel, 1968), this facilitated greater progressive differentiation and integrative reconciliation.

One of the most important variables affecting the learning of science concepts is a positive attitude. Regardless of how well the instruction is planned and executed, if the student dislikes science they are unlikely to learn. Research has shown that positive attitudes toward science leads to improved student interest and achievement in science (Cannon & Simpson, 1985; Schibeci & Riley, 1986). Schrigley (1983) concludes: "The premise that attitudes precede behavior dominates current attitude research" (pg. 107). The significantly improved attitudes of the treatment and control group for science understanding is encouraging. The fact that these teachers felt significantly more confident in their knowledge may have enabled them to feel more comfortable teaching and reflecting about science. Lederman, Gess-Newsome, and Zeidler, (1993) have noted that:

> Teachers who are uncomfortable with the teaching of science... often cite a lack of appropriate background knowledge. (pg. 490)

In general, future research should examine the effects of explicit cognitive strategies that teach the process of reflective writing in a variety of content and process domains. Further, research should examine the effects of combining the explicit reflective writing strategies with other writing strategies such as those described by Yore (1996). Yore (1996) points out that:

> Writing-to-learn science tasks do provide authentic opportunities to develop scientific vocabulary, patterns of argumentation, and technical genre...writing science appears to clarify fuzzy thinking and enhance understanding. (pp. 3, 4)

Research must address how well the reflective skills acquired by the treatment group will transfer to other content and pedagogical arenas. Certainly, the need for reflective teachers has been widely advocated (Clark, 1988; Dewey, 1904; Goodlad, 1991; Kolb, 1984; Resnick, 1992; Schon, 1987), but training teachers to engage in the process of reflection remains a challenge (Kilbourn, 1991; Lindner, 1993).

> Reflection seems to be a luxury for most pre-service and in-service teachers. Based on the overwhelming complexity of the classroom, few teachers have the opportunity to reflect on their knowledge of content (Lederman, Gess-Newsome, & Zeidler, 1993, pg. 491).

One outcome of this study was the realization that reflective writing is a complex cognitive task. Future research is needed to identify cognitive behaviors and patterns associated with the reflective-writing process from an information-processing perspective. Methods of verbal protocol analysis (Ericsson and Simon, 1984) in which students are prompted to think out loud as they engage in reflective writing and reflection activities should facilitate the identification of behaviors and structures. This should lead to improved explicit writing sheets and the development of teacher think-aloud modeling strategies for the reflective thinking and writing process.

In summation, explicit reflective writing is a powerful tool for science teaching and learning. Science educators involved in U.S. reform efforts should take a careful look at how explicit cognitive strategies for reflection can be incorporated into existing curriculum and soon to be developed curriculum. We must have a citizenry who can think and make informed decisions. As Dewey (1904) pointed out many years ago: "We do have to learn how to think well, especially how to acquire the general habit of reflecting."

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SPORTS IN AUSTRALIA: A REFLECTION OF CULTURE

by

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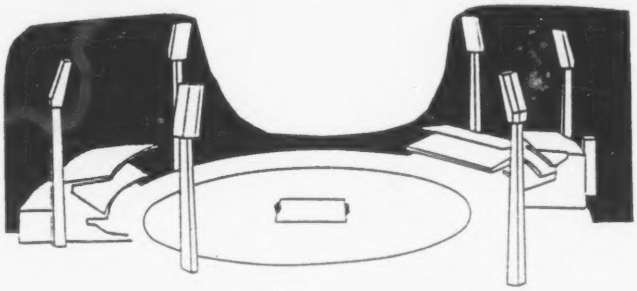
The cynic may say that any sport is a reflection of the culture it represents, such as baseball in the United States, but what about baseball in Japan, cricket in the West Indies, or basketball in the former Yugoslavia? In the land down under sport pervades the whole society, one that is reasonably classless and with few ethnic differences. Some statistics are appropriate to set the scene: an estimated 6.5 million out of a population of 18 million are registered participants in sports (Australia in Brief, 1996, p. 22). In fact over two million girls and women play regular sport (Australia, 1992, p. 118), with netball being the dominant activity. This latter game is like basketball on an outside court with players restricted to certain sections of the playing area and dribbling not allowed.

Cricket

A half million players are involved with cricket alone (Australia, 1992, p. 120), an old English game from which baseball probably derived. Participating countries generally are members of the Commonwealth of Nations and have ties with Great Britain as a colonial power. Those not initiated into the intricacies of the game are often amazed to find out that a test match between rival cricket powers can take as long as six days for one game, which starts in the morning before finishing in the early evening, with breaks for morning and afternoon tea plus lunch; tradition is an integral part of the ritual. Cricket is taken seriously as the issuing of a 1997 stamp illustrates:

> Sir Donald Bradman is not simply the greatest cricketer the world has ever seen - to Australians he is more than this. He is considered a great Australian treasure. He helped establish Australia's identity - an ideal choice for the first Australian legend. (Australian Stamp Bulletin, 1997, p. 4)

Bradman retired way back in 1949 but he is still alive and will always retain his remarkable test average of 99.94 runs, a figure which has never been approached, even to this day. "The Don" as he is called only needed four runs in his final innings to achieve a batting average of 100 but he was dismissed for a "duck" or no score. Perhaps the equivalent in baseball would be to attain a batting average of 1000!



A sketch of the Western Australian Cricket Association ground in Perth (also used for football and hockey)

General Sport

Australians are mad about sports. They love to participate in them, watch them, argue about them, bet on them. Children fantasize about being chosen to wear Australia's green and gold --the national colors-- in international competition. And for young and old alike, heroes tend to be athletes.

The largest spectator sport, football, is really four different sports: rugby league, rugby union, soccer, and Australian National Rules. More than any other sport, soccer reflects the ethnic shifts in Australia's post-war population. The rosters of the professional teams are dominated by New Australians, people with names like Kosmina, Katholos, Bertogna, and Senkalski. Australian Rules is especially popular in the southern states and Western Australia.

In the summer, cricket becomes the nation's passion. Every major city has a cricket arena, seating from 30,000 to 90,000 spectators. Water sports such as swimming, surfing, skin diving, and sailing are popular year-round, as might be expected in a country where 95 percent of the people live within 10 miles of the seashore. (Lands and Peoples, pp. 459,460)

A summary at the end of McKnight lists national sports as horse racing, cricket, Aussie Rules, rugby league and union, soccer, swimming, surfing, tennis, golf, basketball, and two-up (p. 60). The last game uses two pennies which are flipped into the air from a paddle while gamblers bet on the resulting outcome. Casinos have been established in each of the major urban areas and two-up is included with old pennies from prior to metrification being used in the process. Modern pennies or one-cent pieces are no longer used in the currency system and they were considered to be too small anyway. While the author grew up in the fifties in the mining town of Kalgoorlie found in the Western Australian outback or bush, regular two-up games were staged on the weekend near deserted roads out of the community. The current location was marked by a painted 44-gallon drum and the authorities appeared to turn a blind eye to the proceedings which were illegal. As these activities took place, prostitution was flaunted in the infamous Hay Street section of the same town, while authorities also denied its existence.

Not mentioned in McKnight's list was lawn bowling, a pastime that also came from England and was played in the time of Sir Francis Drake in the sixteenth century. He is reputed to have continued his game while the Spanish Armada approached his country, before defeating them soundly in a famous sea battle. Mainly popular amongst older citizens, the manicured lawns are more like billiard tables than fields because of their very smooth surfaces, which seem to be always full of participants dressed in immaculate white clothing. Like golf, the game is much harder than it looks with the object being to roll the large biased balls next to a small white target ball called the kitty. Each of the bowls is marked with an identifying logo that may signify something to its owner. For instance, the author's father, an avid bowler, used an orange moneybag with a pound sign (pre-metric) emblazoned on it, to represent his occupation of bank manager. Even indoor carpet bowls are popular with younger players and families involved as a contrast to the outdoor variety.

Another game not included in the list above is field hockey which gains a lot of interest in the winter months and is equally popular with both men and women. Australians simply refer to the sport as hockey just like Americans do when they speak about ice hockey, a game which is not very common in a country with such small areas subject to snow and ice. Such terminology is, no doubt, similar to Americans and Australians calling the world's biggest sport soccer while the rest of the world uses the term football. This occurs because we each have our own dominant versions of sports which make use of a football.

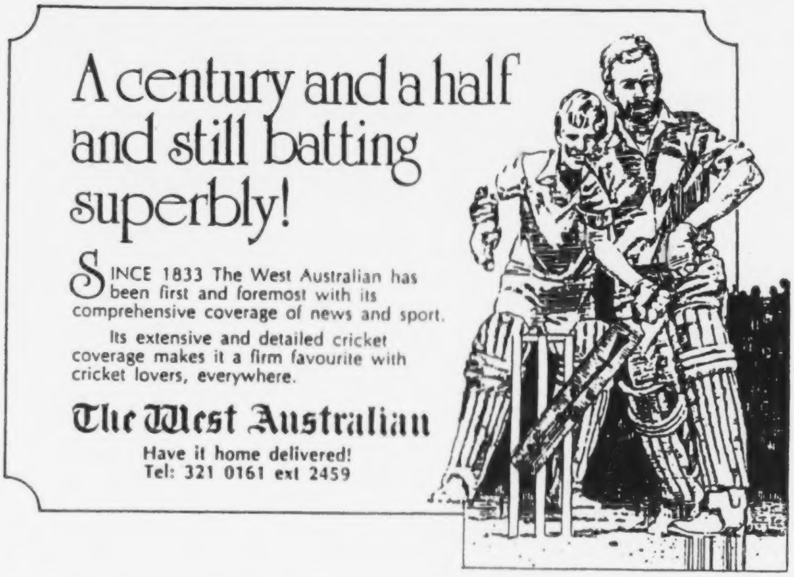
Climate has obviously played a major part in the evolution of Australian sport, with the role of water paramount. McKnight (p. 21) used the term "sunbronzed populace" in his book but that goal has resulted in the country achieving a top ranking in the appearance of skin cancers too. It is not difficult to explain this dilemma when tourist promotional material proclaims that Perth averages eight hours of sunshine for every day of the year, a statement that is backed up by meteorological data. Selecting golf as one example, it is possible to play throughout the year in Australia, whereas that is not the case in much of the United States. Interestingly enough, most players still walk with carts much less noticeable than in America. As a member of the Joondalup Country Club in the suburbs of Perth, it was not permissible to use a motorized cart in competition without a medical certificate, regardless of age. This course of 27 holes winds through an old quarry near the coastline and is extremely undulating and difficult.

The Australian Institute of Sport opened in 1981 and now has major sports campuses in a number of cities, providing coaching, facilities, scholarships, sports science and medicine, etc. (Australia, p. 118). Many other countries have looked at this concept enviously. One major departure from American sports is the emphasis on the district level rather than upon college and professional leagues. It must be noted that there are only about 40 tertiary institutions in Australia compared to some 3,500 in the United States. While professional teams do exist, most of the players still have to maintain a regular job. Although the monetary rewards are continuing to grow, it is safe to say they will never reach the heights of professional sports in the United States, where multimillion-dollar contracts are commonplace. A number of expatriate golfers and basketball players are now domiciled in this country in order to take advantage of the enormous salaries available.

It has been said that Australia rode to prosperity on the sheep's back but many spectators are more interested in the horse. Racing is a huge business with the turnover of the TAB (Totalisator Agency Board) exceeding four billion dollars annually and the premier race, the Melbourne Cup, having been run every year since 1861 (Australia, p. 119). Virtually every office and even other sporting events stop for those few minutes on the first Tuesday of November event held in Melbourne, where the day is declared a public holiday. Harness racing (trotting) is also common and the events tend to be quite a spectacle with brightly dressed jockeys sitting on lightweight sulkies. Saturdays, in particular, seem to be dominated by staccato race broadcasts which drone out from their radio sources.

Associated with commercials on television and radio are endorsements by prominent sporting identities which help to subsidize their incomes. In another parallel to American culture, pertinent advertisements appear in sporting and other magazines, with some specific examples shown on the next two pages.

Examples of advertisements appearing in The Western Cricketer Year Book 1986-87



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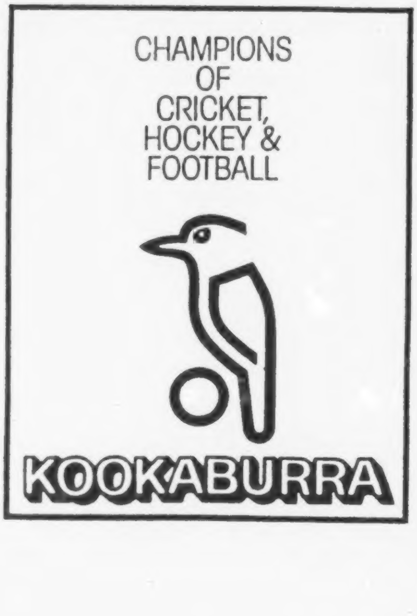

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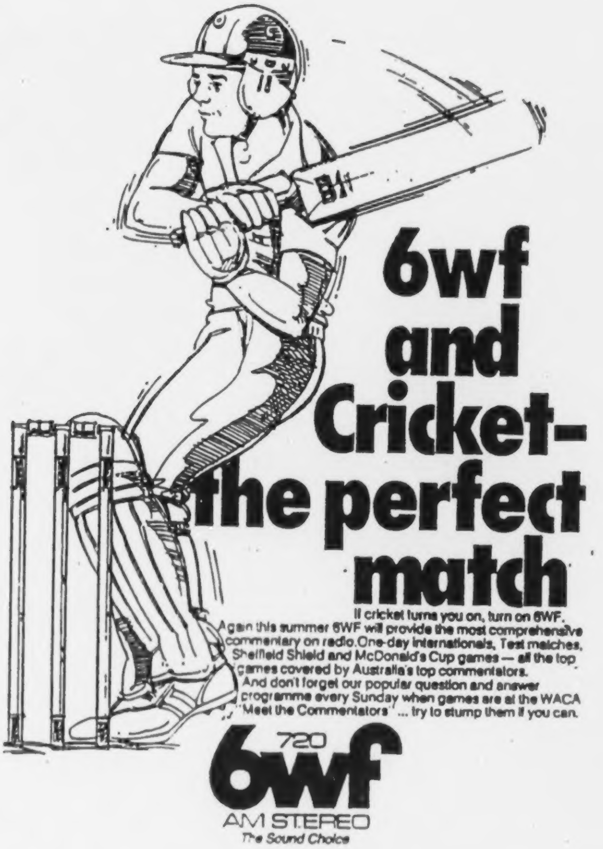
More Examples of advertising in the Western Cricketer



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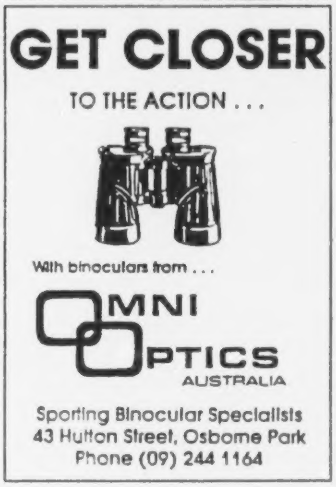

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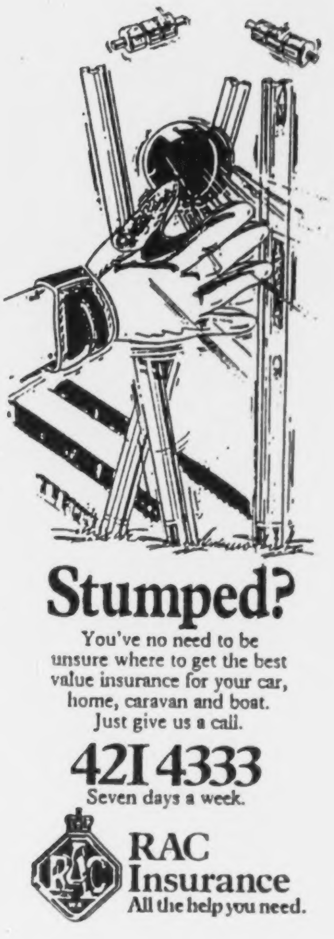

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A couple of significant dates in Australian sport are the Summer Olympics scheduled for the year 2000 in Sydney and the 1956 games held in Melbourne, where the host country finished third in the medal count. Actually, Australia is one of only three countries to have competed in every modern Olympics, along with the United Kingdom and Greece. Another milestone in sports was when the America's Cup, the so-called "Holy Grail" of yachting, was wrenched from the United States for the first time in 132 years by an Australian syndicate in 1983. Even though the defense in 1987 was unsuccessful. the port of Fremantle was transformed from a utilitarian location to one where tourists could walk on wooden planking and eat outside in French-style cafes. Every building in the city was either repainted or restored with the addition of markets, trendy shops, hotels, and other attractions, leaving a lasting legacy for Perth and its Indian Ocean outlet.

Australian Rules Football

Switching to Australian Rules, the most unique football code that is played in every state and is dominant in all but New South Wales and Queensland, one can gain a strong impression of how seriously Aussies take their dose of sports medicine. Unlike the United States. there are not a large number of black athletes participating in Australian sports. but the opportunity is still seen as a chance to advance in society for Aboriginal people. One way to emphasize this situation is through an article which appeared in *The Sydney Morning Herald Magazine* of February 8, 1997. Ten years previously, in 1987, the football grand final held in Yuendumu in the Northern Territory was abandoned when a rumor circulated through the crowd that the Red Ochre Man was present.

Further emphasizing the influence of traditional beliefs, another team from Papunya wore a green jersey with a large yellow ant on it which represented the land of the Honey Ant Dreaming (p. 31). In Aboriginal mythology the Dreaming or Dreamtime is their explanation for the origins of the earth, its physiography, and inhabitants.

Australian Rules is a game played over four quarters for approximately 120 minutes when time-on is included. Each team consists of 21 players of whom 18 per team are on the field at any one time and many of the participants will play the duration of the game on a very large field often known as the oval (about twice the size of a gridiron). Interchange players can be substituted at any suitable point in the game, although for many years there were but two reserves who could only replace any two players on the ground permanently. The object of the game is to score points by kicking the oval leather ball though two high goal posts (six points) or between two smaller posts known as behind posts (one point). Of course, the team with the greatest number of points is declared the winner. The ball is passed from player to player by kicking it or punching it off of one's hand, with the option of bouncing the ball as another means of advancing down the field--a difficult task. Detractors have coined the term "aerial Ping-Pong" for the code. A one-hour package of selected highlights from the game appears on cable television in the United States each week during the long winter season and the grand final is televised live in September. Several million attend matches each year while millions more follow the antics of the players in Australia via the media, with a record crowd of 121,000 attending an earlier grand final in Melbourne.

CONCLUSION

A sporting heritage that is worthy of emulation has sport in Australia sitting on a pedestal, simply because the people of that country choose it to be so, thereby fitting into a generally sympathetic climate and a way of life passed on from previous generations. This passion is seen in every aspect of life with a majority of citizens playing, watching, or listening to their favorite sports, and, as one pundit put it, predicting the outcome before a match takes place, watching it, then discussing the results endlessly in any interval remaining before the next confrontation.

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2 + 2 = 5: USING CRITICAL THINKING TO TRANSFORM INDIVIDUAL TERM PAPERS INTO COLLABORATIVE RESEARCH PROJECTS

by

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Background: The Undergraduate Research Paper

The research paper and its preparation comprise a central task for the undergraduate student. Determining a research topic, locating and evaluating sources, and selecting those appropriate to the research purpose, are among the important skills all students must master in order to be successful in their college careers. If the dual purposes of imparting knowledge and fostering independent thinking are to function in the college classroom, then the research project must be considered integral to the accomplishment of that mission.

At Black Hills State University, English 102 (Written Communication 2), has as its primary goal the teaching of the research paper. Typically, students are expected to write a 1500-word term paper using either the Modern Language Association (MLA) or American Psychological Association (APA) format. English 102 students are expected to gather information from a variety of sources, local and global, print and electronic. The Internet has become a primary resource for student research, requiring even more skill at locating, sorting, and interpreting data. The *Little, Brown Handbook,* the course guide to research, covers the following topics: evaluating and synthesizing sources; taking notes using summary, paraphrase and direct quotation; and developing a thesis sentence. Creating a structure around the thesis statement, the student is expected to produce an integrated, cohesive research paper rather than a mere compilation of sources (Fowler and Aaron, 1995, pp. 551-552).

Unfortunately, it has been more often the English instructor's experience to read term papers which appear more like collections of information rather than organized discoveries leading to a central argument. All too often, these papers read like a series of quotations or close paraphrases, strung together from a few sources, reflecting the view of their authors, rather than the thoughtful analysis of the student writer. Students, when asked, will distinguish between an "informative" term paper and an "opinion" essay. The former is generally regarded as a skillful compilation with little intrusion from the student, while the latter invites speculation and opinion with little regard for logic or evidence. It is little wonder that university faculty question whether undergraduate students are capable of the higher levels of reasoning—analysis, synthesis, and judgment.

It can be argued that undergraduate students could more profitably limit themselves to assimilating, synthesizing, and documenting sources. Before students can engage in higher reasoning, they must first read and assimilate source materials, with increasing degrees of knowledge and comprehension as they become more familiar with the research literature. Gradually, students learn to work with the body of information more intuitively, until they can operate at what Richard Paul calls single system reasoning. Questions are asked for which there is one and only one possible correct answer (Paul, 1995, p.56). Single system reasoning is prerequisite to higher level reasoning, since reading comprehension and understanding of texts is the very basis of forming judgments and assessments in a multi-system reasoning environment.

In their general education courses, freshman and sophomore students are more than likely to be taking large lecture classes in which the primary mode of pedagogy is didactic. In didactic instruction, the instructor is the interpreter and dispenser of the text. Information from the textbook is delivered primarily through lecture. The student is usually expected to "parrot" this material—often in a multiple choice test—in the same form it was delivered, without processing it. In this mode, the student's mind frequently disengages, retreating to rote memorization of the lecture notes. "Content" is reduced to lists remembered through simple acronyms.

Viewed in the context of general education courses delivered didactically, the English instructor's task resembles that of Sisyphus pushing that heavy rock up a hopeless hill. The instructor is asking college freshmen and sophomores to transcend their environment of packaged information provided from "received" texts, and to begin to evaluate data critically. Where students are used to accepting authority uncritically, they are now asked to suspend their customary status and simultaneously assimilate and assess the texts they are reading. Under the circumstances, we can legitimately wonder if thinking—much less critical thinking—can enter into the research process. The instructor who insists upon thinking in her students often faces a wall of indifference and sometimes resistance. The research project is viewed by many undergraduates as a task involving compilation and manipulation of authoritative texts, rather than an exploration of ideas taking the student beyond the secure realm of lists, formulas and lecture notes. Any attempt to infuse critical thinking into the research process, if it is to succeed, must first find a way to re-establish the connection between thinking and content.

Critical Thinking

Perhaps the most comprehensive and systematic study of critical thinking has been conducted by Richard Paul (1995). Critical thinking is defined as:

> A unique kind of purposeful thinking in which the thinker systematically and habitually imposed criteria and intellectual standards upon the thinking, taking charge of the construction of thinking, guiding the construction of thinking according to the standards, assessing the effectiveness of the thinking according to the purpose, the criteria, and the standards (p. 21).

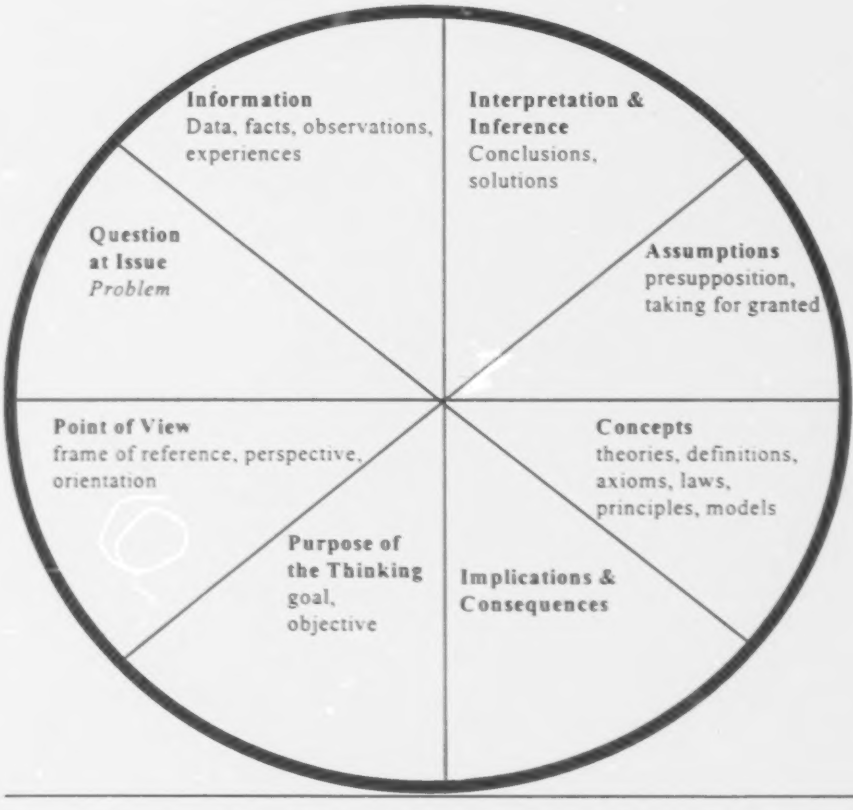
Paul argues that critical thinking requires fitness of the mind akin to physical fitness for the body. Traits of the critical thinker include intellectual integrity, intellectual humility, fair-mindedness, intellectual empathy, and intellectual courage. Critical thinking also involves continually assessing the process, adjusting, adapting, and improving it. Finally, critical thinking deliberately assesses the thinking to determines its strengths and limitations, according to the purpose and criteria and standards, studying the implications for further thinking and improvement (p. 21).

The basic idea behind critical thinking is that learning must be active. To create new meanings, to understand new experiences, to solve new problems, one must actively and intellectually participate in the "figuring out" process. To learn is to reason, and to learn well one must reason well. Critical thinking assumes active engagement, from give and take, from disciplined reading, writing, speaking, or listening. It takes thinking apart in order to understand how it works, and at the same time assess its own effectiveness.

Critical thinking can be a powerful tool for engaging students in the research writing process. While students are engaged in deciding upon topics for their research papers, they are introduced to the primary critical thinking tools: the Questions, Elements, and Standards of Reasoning. Questions are of three types: information, opinion, and judgment. Elements of Reasoning are: question at issue, information or data, point of view, assumptions, systems or theories, inferences and consequences, purpose, and conclusions. Standards include: relevance, precision, accuracy, clarity, breadth, depth, and logicalness (Figure 1). Together, the Questions, Elements, and Standards are interrelated and form a dynamic reasoning process that with practice becomes intuitive.

Figure 1

THE ELEMENTS OF REASONING


Information
Data, facts, observations, experiences
Interpretation & Inference
Conclusions, solutions
Question at Issue
Problem
Assumptions
presupposition, taking for granted
Point of View
frame of reference, perspective, orientation
Concepts
theories, definitions, axioms, laws, principles, models
Purpose of the Thinking
goal, objective
Implications & Consequences

WITH SENSITIVITY TO UNIVERSAL INTELLECTUAL STANDARDS

Clear

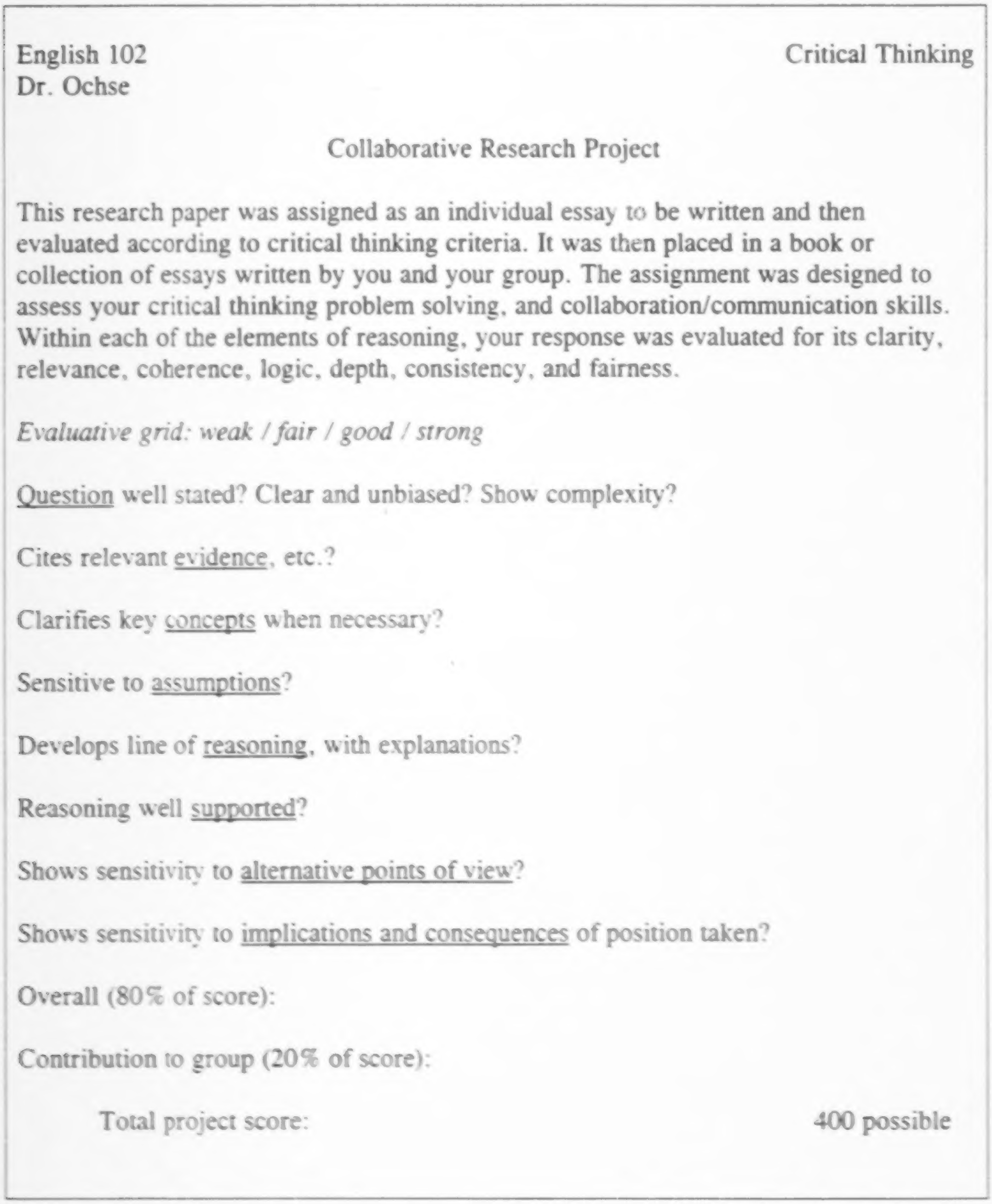
Accurate
Precise
Relevant

Deep

Breadth

After writing several practice papers using critical thinking techniques and being evaluated using criteria developed from the Elements of Reasoning (Figure 2), students began the collaborative research process.

Figure 2



English 102 Critical Thinking
Dr. Ochse

Collaborative Research Project

This research paper was assigned as an individual essay to be written and then evaluated according to critical thinking criteria. It was then placed in a book or collection of essays written by you and your group. The assignment was designed to assess your critical thinking problem solving, and collaboration/communication skills. Within each of the elements of reasoning, your response was evaluated for its clarity, relevance, coherence, logic, depth, consistency, and fairness.

Evaluative grid: weak / fair / good / strong

Question well stated? Clear and unbiased? Show complexity?

Cites relevant evidence, etc.?

Clarifies key concepts when necessary?

Sensitive to assumptions?

Develops line of reasoning, with explanations?

Reasoning well supported?

Shows sensitivity to alternative points of view?

Shows sensitivity to implications and consequences of position taken?

Overall (80% of score):

Contribution to group (20% of score):

Total project score: 400 possible

Collaborative Learning

Collaborative learning assumes that students will learn more effectively working together than working independently (Bruffee, 1993, pp. 16-18). Of course, every learning activity is collaborative, if one includes lecture notes, reading assignments and other source materials; every text provides portals for collaboration. Collaborative learning theory owes its postmodern origin to the work of the Russian psychologist L. S. Vygotsky. In his "zone of proximal development," Vygotsky postulated a window of learning opportunity through which learners are pulled through in collaboration with more capable peers.

> The zone of proximal development is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.
>
> Learning creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the [student] is interacting with people in his environment and in cooperation with his peers. Once the processes are internalized, they become part of the [student's] independent developmental achievement (Vygotsky, 1978, p. 86).

Vygotsky's "zone of proximal development" led to the idea of collaborative learning, which regards the learning process as negotiated conversation between learners in a discourse community. Bruffee (1993) observes:

> "The range, complexity and subtlety of our thought, its power, the practical and conceptual uses we can put it to, and the very issues we can address result from the degree to which we have been initiated into the craft of interdependence within the knowledge communities we belong to. . . . If college and university students are to become members of sophisticated, complex, highly literate communities, they can best reach that goal by experiencing something like that community membership in class—through collaborative learning" (pp. 114-115).

"Consensus," argues Trimbur, "can be a powerful instrument for students to generate differences, to identify the systems of authority that organize these differences, and to transform the relations of power that determine who may speak and what counts as a meaningful statement" (p. 603). Consensus, rather than resulting in mediocre compromise, can lead to better thinking on the part of all members of the group. The group also provides a significant role in emotional support, which together with the psychological power of peer influence (Gebhardt, 1980, pp. 69-71) can move under-motivated and less capable peers to conform with higher group norms. Writing collaboratively, students find that receiving feedback at all stages of the composing process leads to a far richer and thoughtful narrative than waiting until the later stages (p. 71).

Critical Thinking and Collaborative Learning

Critical thinking and collaborative learning together enhance the research process by bringing about a disciplined yet supportive research and publication procedure, and by providing common assumptions about the validity and reliability of research findings, yet encouraging diversity of points of view. For the student, critical thinking is prescriptive in origin yet dynamic in outcome. Collaborative learning involves negotiated conversations in the learning context, resulting in higher levels of knowledge.

Critical thinking brings to the research process the following tools: (1) weighing evidentiary support in determining its use in research; (2) using logical and systematic thinking in developing a question at issue and answering it; (3) exploring connections between assumptions, points of view, and concepts; and (4) developing criteria for assessing results.

Collaborative learning advances the research process in the following ways: (1) providing a supportive environment for students to conduct research; (2) offering a mediating audience for drafting, composing, and negotiating the written text; (3) improving the quality and quantity of thinking through continuous effort and feedback; and (4) developing social skills in analysis, judgment, and criticism.

Following a sequence of critical thinking exercises and writing activities, students were provided detailed guidelines for their research project (Figure 3). These guidelines summarize critical thinking principles, describe the traditional term paper, and explain how critical thinking should guide and inform the research procedure. Guidance is also provided in matters of publication format, collaborative group work, and evaluation of the completed project.

Figure 3

Collaborative Research Project
Guidelines

Critical Thinking. The collaborative research project is based on the critical thinking model. Critical thinking is a disciplined process of seeking truth. As such it involves abilities such as identifying assumptions, discerning implications, and understanding consequences of any choice or course of action taken. It involves intellectual standards such as clarity, depth, precision, and integrity.

This view of critical thinking builds on the work of Richard Paul, Robert Davis, and Vincent Ruggerio. The basic assumptions behind their approach are: (1) critical thinking is systematic and disciplined; (2) critical thinking begins with questions, which can be categorized into three types: Category 1, where there is one and only one correct answer; Category 2, where the answer is one of preference or "mere opinion"; and Category 3, where there are better or worse answers depending on the logic and evidence provided in support of the answers. (3) Critical thinking operates most profoundly within Category 3 level questioning and answering; and (4) critical thinking can be applied to any area of human learning.

Term Papers. You have most likely written a term paper for high school and college courses, in which you were asked to assemble a variety of sources pertaining to your research topic. Depending upon the instructor, you then used either the MLA (Modern Language Association) or APA (American Psychological Association) format in producing your paper. Most term papers emphasize the correct and appropriate use of sources and tend to be informational in nature. More controversial positions, if taken, usually borrow from the sources than originate from the student. As a result, many term papers present themselves as a mere compilation of sources rather than a critical inquiry into the subject.

Furthermore, the typical student research paper relies almost entirely on secondary sources, in which the primary or original research work has been done by others. The "authority" of the student writer, therefore, is wholly dependent upon the thinking of the "expert" researchers or authors whose work is being cited. If the student writer has not sorted out all the conflicting voices of his or her sources, the result can be a "Tower of Babel"—a confusing mixture of voices with no controlling point of view.

Research Writing and Critical Thinking. At this point we need a tool that will enable us to harness all these conflicting voices—all sounding authoritative—into a coherent whole, under your control and direction. Critical thinking can provide such a tool. Using the elements (wheel), standards, domains, and questions, you can figure out what you want to say and how to say it. One of the most important elements is the Question at Issue: What is the main point of my project? As you cull through your sources, both primary and secondary, you will shape and reshape your question. This will determine the central focus of your study, and at the same time will assert your position within your collaborative group.

Critical thinking does not replace the need for careful research; rather, it clarifies and enhances the research process. Critical thinking rejects sloppy, shallow documentation. It insists on depth, accuracy, precision in the interpretation of data as well as the selection of sources. Critical thinking rejects the insertion of personal opinion. Instead, it requires a coherent line of reasoning based on convincing evidence. Critical thinking really defines the essence of research.

Your Assignment. Your group will conduct a research project with an emphasis on contemporary issues. Each member of your group will investigate a particular part of the issue and write an individual essay based on a critical perspective. These papers will become chapters in a book edited by the group, with a title page, table of contents, introduction, chapters, and bibliography. For example, a group might write a book about Deadwood gambling, with separate chapters on topics such as the economic impact on the community, gambling addition, "gaming" vs. "gambling," the story of one casino, the labor perspective, etc. Once each group member has completed his or her essay, it is mandatory that every group member read every other essay, to assure continuity of the investigation and to identify opportunities for better thinking. Consider how each individual, critical thinking "wheel" functions to the other "wheels" as well as the larger "wheel" representing the whole project.

Format. All documents will be laser printed in a compatible and consistent format on 8½" by 11" quality white paper. Bindings may be three-ring, spiral bound, or other standard methods. Margins will be one inch on the top and bottom of each page, with 1½" left margin and 1" right margin. Title pages, contents, tables, illustrations, and bibliographies will follow consistently APA or MLA format (see *Little, Brown Handbook*). For examples of various formats, see the library of collaborative research projects in my office.

Hints for Success. I have found collaborative research can be the most rewarding—and sometimes the most frustrating—way to learn about a subject. Success depends on cooperation. Each member has his or her special strengths, and the wise group exploits these strengths. Some of the trouble spots are: incompatible computer formats, inadequate printers, illness of a key member, slow response from sources, and group member dissension. In spite of all these potential problems, I believe collaborative projects can produce a higher quality learning opportunity. For this reason they are being stressed in this course.

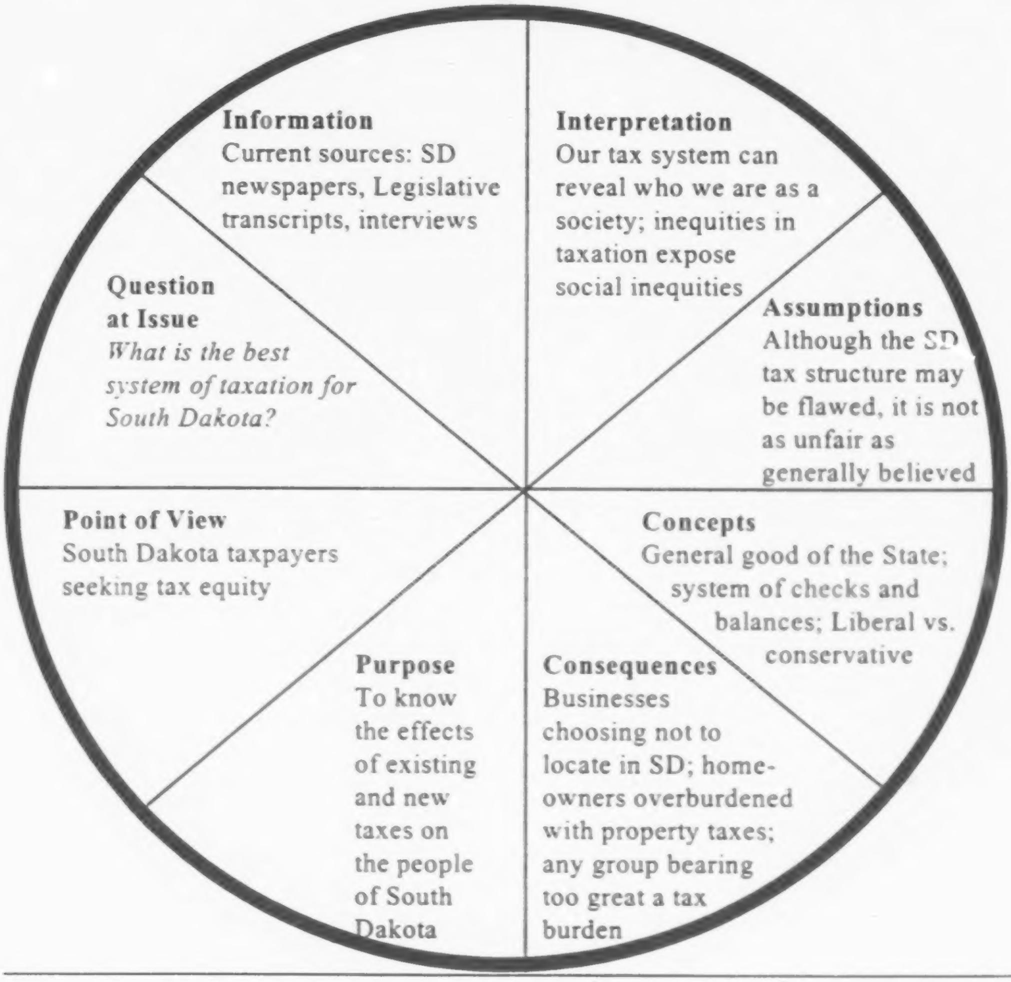
Evaluation. Although each step of the collaborative research process will be taken into account, the evaluation of the project will emphasize the final product: the book or report. Grades will be assigned individually, with approximately 20 percent of the grade reflecting your contribution to the group. A project, for example, with an outstanding introduction, excellent essays, but with one or two essays not of the caliber of the rest, would not create problems for those with excellent work. In any event, I will look at each project holistically and meet with each group member individually as part of the assessment.

A Representative Sample Student Research Project

Five English 102 students designed a collaborative research project, "Taxation in South Dakota." The Question at Issue for the project was: "What is the best system of taxation for South Dakota?" Using the Collaborative Research Project Guidelines (Figure 3), the student authors constructed a "wheel" representing the Elements of Reasoning for the project as a whole (Figure 4).

Figure 4

Taxation in South Dakota



Information
Current sources: SD newspapers, Legislative transcripts, interviews

Interpretation
Our tax system can reveal who we are as a society; inequities in taxation expose social inequities

Assumptions
Although the SD tax structure may be flawed, it is not as unfair as generally believed

Concepts
General good of the State; system of checks and balances; Liberal vs. conservative

Consequences
Businesses choosing not to locate in SD; home-owners overburdened with property taxes; any group bearing too great a tax burden

Purpose
To know the effects of existing and new taxes on the people of South Dakota

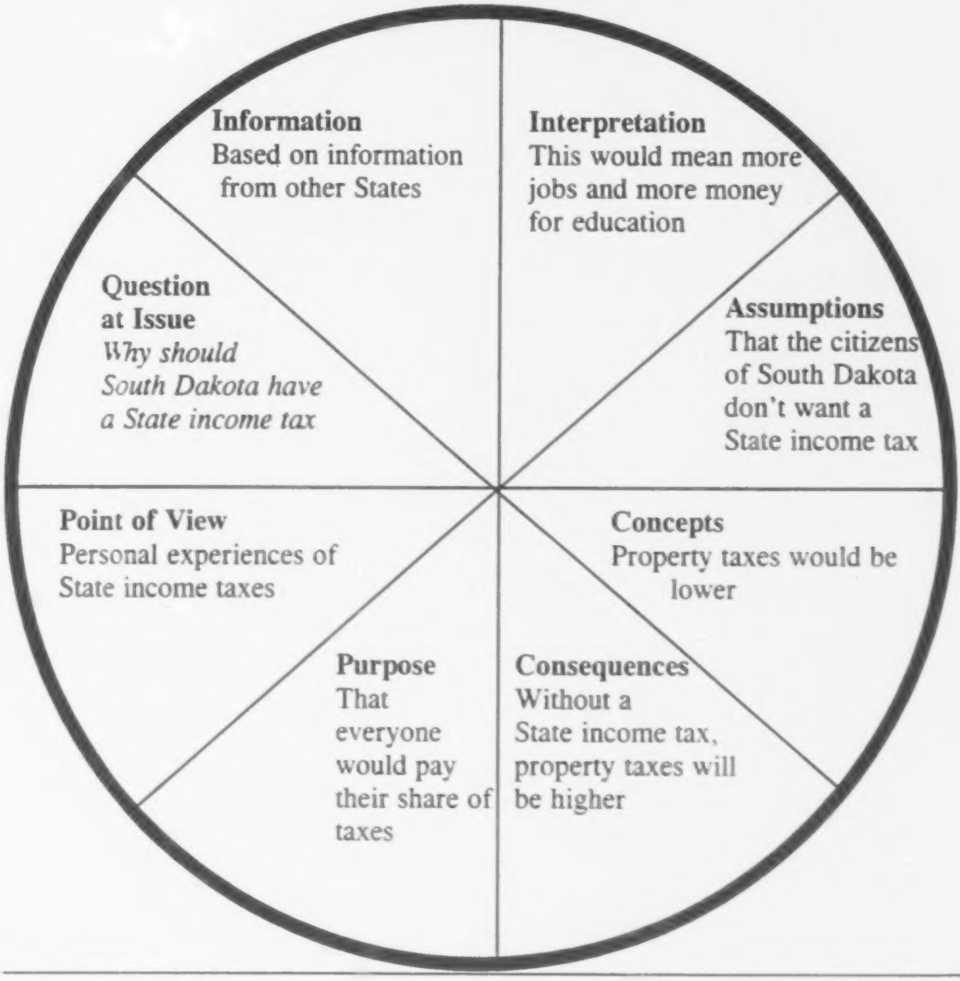
Point of View
South Dakota taxpayers seeking tax equity

Question at Issue
What is the best system of taxation for South Dakota?

The students then designed individual "wheels" for their sub-projects, using the eight Elements of Reasoning (Figure 5). Using this strategy, collaborating together through designing each other's wheel, then reasoning inductively to design the overall wheel, and finally checking to see how each wheel fit within the total design, the students were able to envision the project as a whole and at the same time see their individual contributions in a new light. This conversation resulted in a collaborative reasoning process that "figured things out"—testing and adjusting ideas against assumptions, observations, past observations, beliefs, and experiences. Actively engaged in reasoning collaboratively and individually, the students began to regard research as an ongoing pursuit of truth.

Figure 5

State Income Tax
by Jimmy L. Walker Jr.



Information
Based on information from other States

Interpretation
This would mean more jobs and more money for education

Question at Issue
Why should South Dakota have a State income tax

Assumptions
That the citizens of South Dakota don't want a State income tax

Point of View
Personal experiences of State income taxes

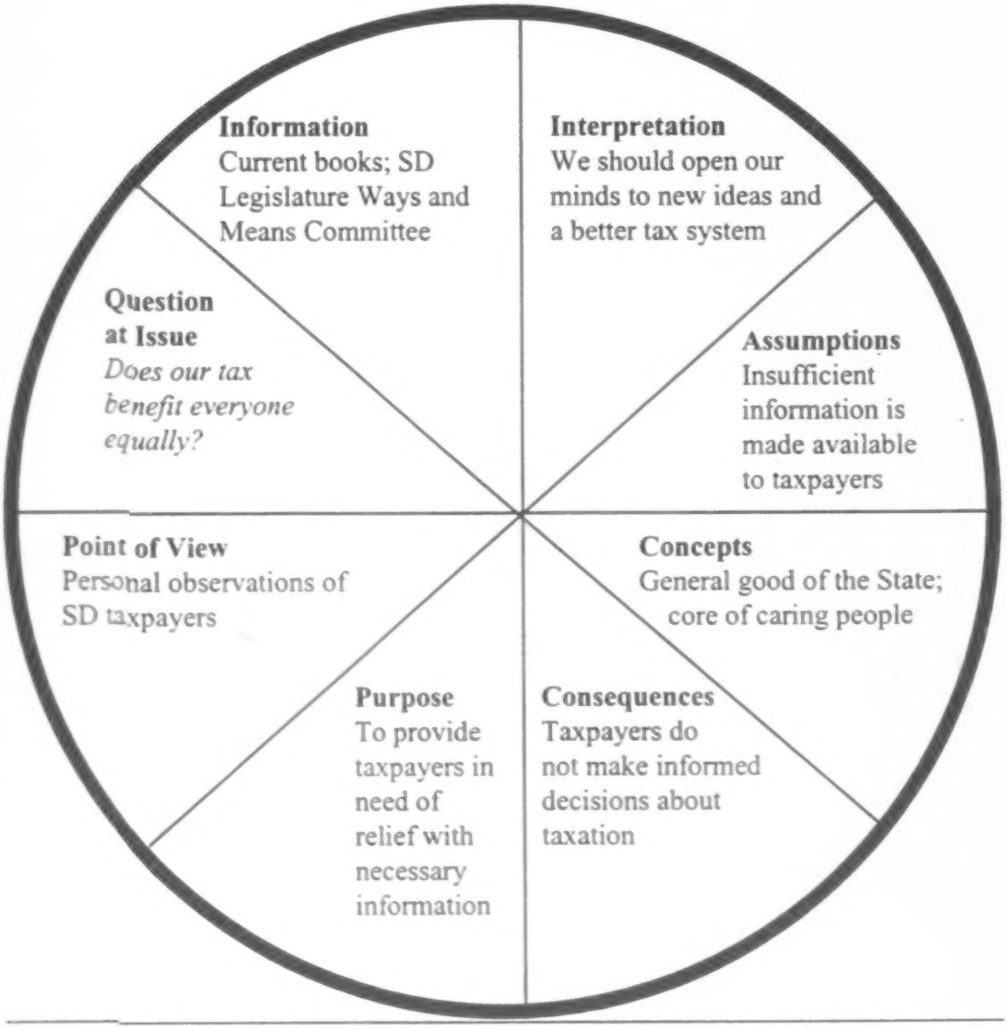
Concepts
Property taxes would be lower

Purpose
That everyone would pay their share of taxes

Consequences
Without a State income tax, property taxes will be higher

Taxation: A Simple but Complex Explanation

by Amber Koch



Information
Current books; SD Legislature Ways and Means Committee

Interpretation
We should open our minds to new ideas and a better tax system

Question at Issue
Does our tax benefit everyone equally?

Assumptions
Insufficient information is made available to taxpayers

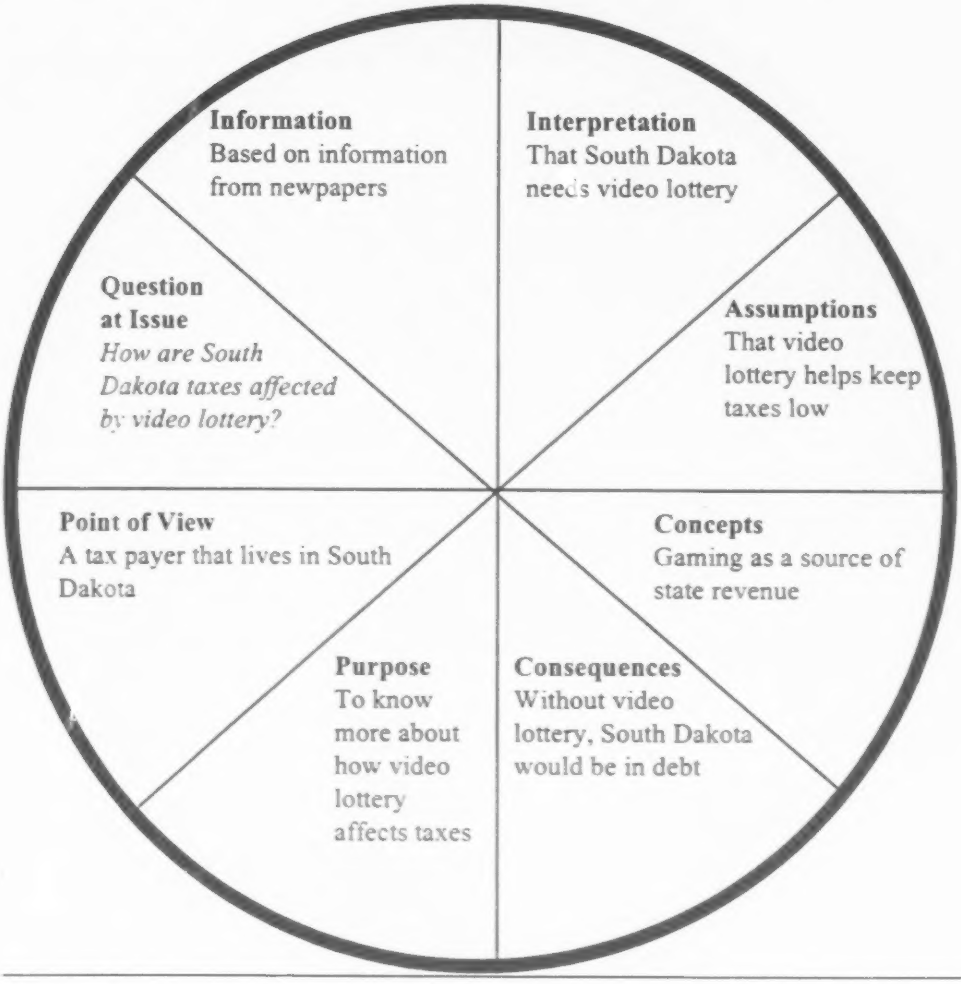
Point of View
Personal observations of SD taxpayers

Concepts
General good of the State; core of caring people

Purpose
To provide taxpayers in need of relief with necessary information

Consequences
Taxpayers do not make informed decisions about taxation

Video Lottery
by Anthony Galbraith



Information
Based on information from newpapers

Interpretation
That South Dakota needs video lottery

Assumptions
That video lottery helps keep taxes low

Concepts
Gaming as a source of state revenue

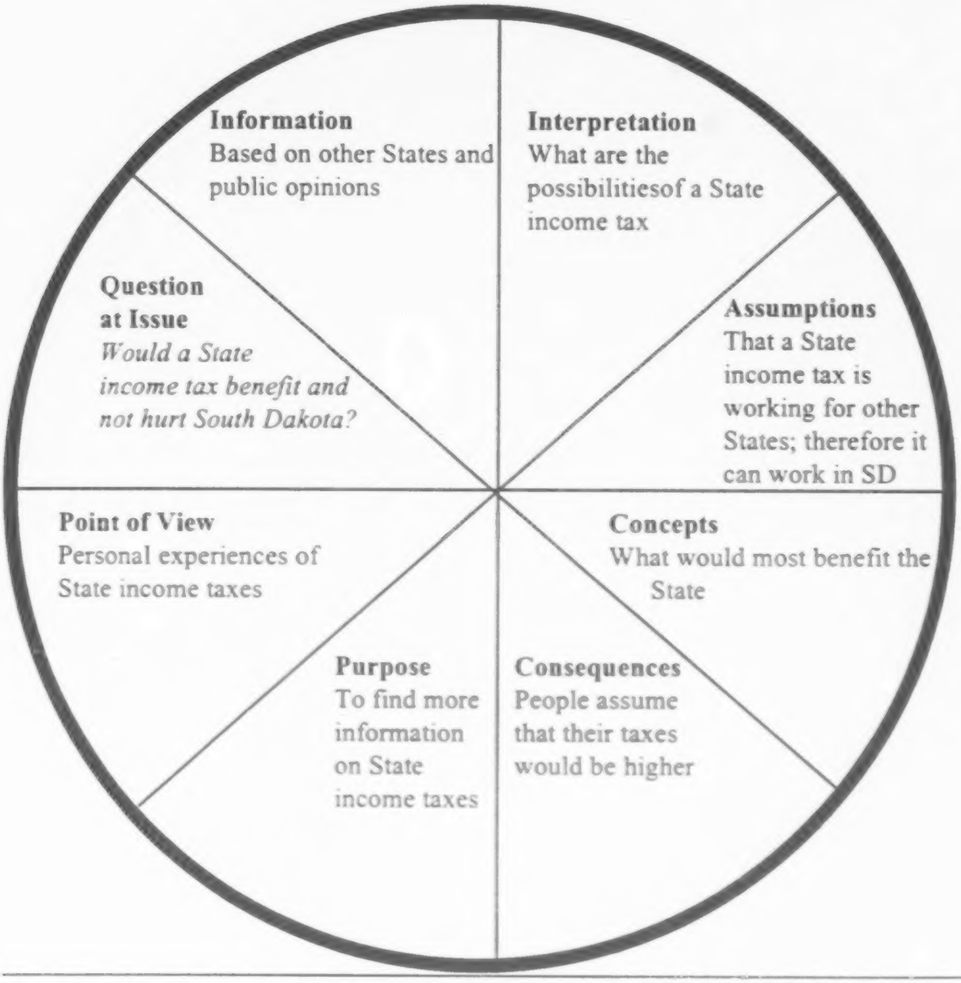
Consequences
Without video lottery, South Dakota would be in debt

Purpose
To know more about how video lottery affects taxes

Point of View
A tax payer that lives in South Dakota

Question at Issue
How are South Dakota taxes affected by video lottery?

Income Tax for South Dakota
by Matt Lingen



Information
Based on other States and public opinions

Interpretation
What are the possibilitiesof a State income tax

Assumptions
That a State income tax is working for other States; therefore it can work in SD

Concepts
What would most benefit the State

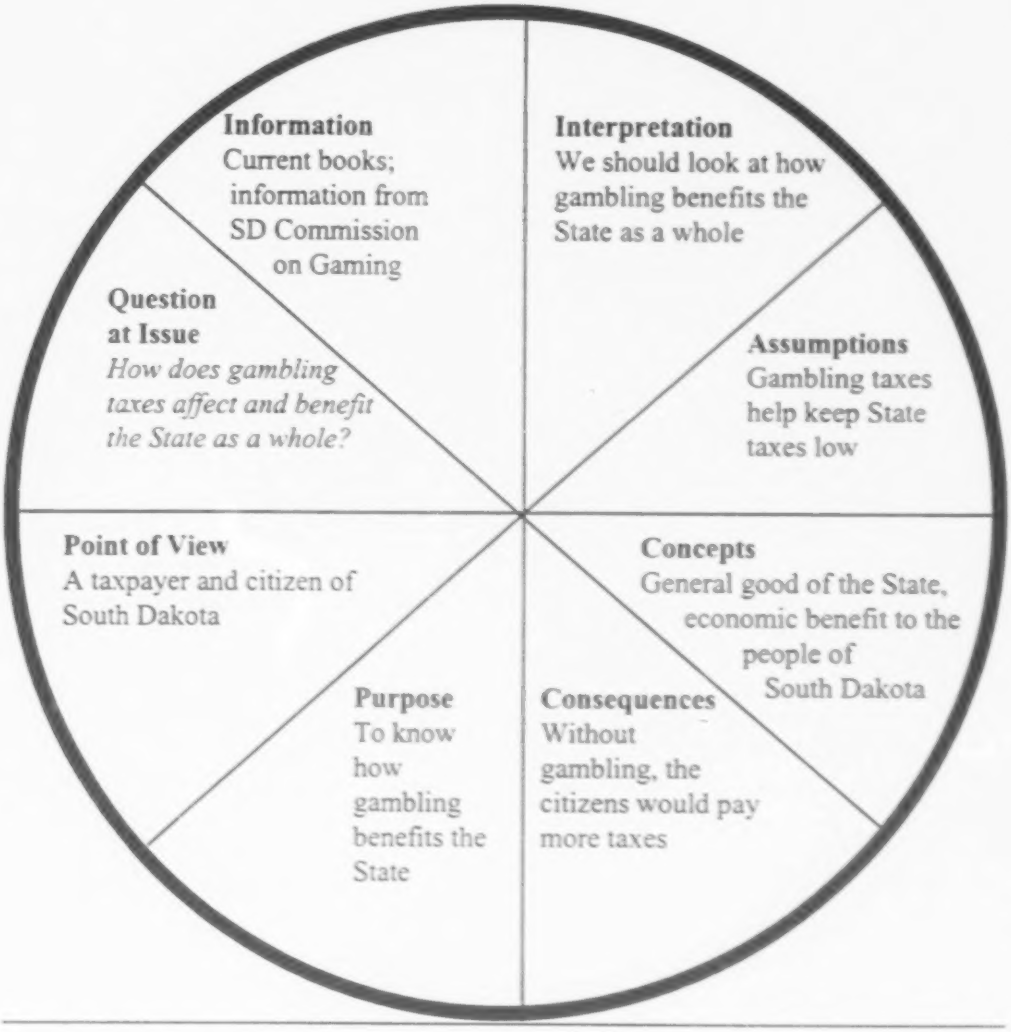
Consequences
People assume that their taxes would be higher

Purpose
To find more information on State income taxes

Point of View
Personal experiences of State income taxes

Question at Issue
Would a State income tax benefit and not hurt South Dakota?

Deadwood Gambling Taxes
by Rick Haupt



Information
Current books; information from SD Commission on Gaming

Interpretation
We should look at how gambling benefits the State as a whole

Question at Issue
How does gambling taxes affect and benefit the State as a whole?

Assumptions
Gambling taxes help keep State taxes low

Point of View
A taxpayer and citizen of South Dakota

Concepts
General good of the State, economic benefit to the people of South Dakota

Purpose
To know how gambling benefits the State

Consequences
Without gambling, the citizens would pay more taxes

Conclusion

Using critical thinking methodology in tandem with collaborative learning, students were able to transform the term paper into a collaborative research project. Infused with critical thinking, the collaborative learning process resulted in a supportive yet disciplined research and publication procedure. Within the dynamics of group work, critical thinking encouraged diversity of points of view, yet provided a common assumption about the validity and reliability of research findings. Critical thinking, assisted by collaborative learning, provided students three essential research tools: (1) weighing evidentiary support in determining its relevance; (2) employing logical and systematic thinking in developing questions at issue and other elements of reasoning; and (3) developing criteria for assessing results. With practice, critical thinking—along with the research process itself—becomes more intuitive. Students learn that thinking can be both independent and collaborative, moving them toward the ideal of critical inquiry. Indeed, 2 + 2 = 5.

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FROM PLATO TO CYBERSPACE: AN INTRODUCTORY INTERDISCIPLINARY INTERNET COURSE

by

William J. Bogard
Professor of English
College of Arts and Humanities

The Theoretical Basis

I developed a course entitled, "The Human Experience" in 1972, the same year that the South Dakota Humanities Council was formed. The current Black Hills State University catalogue describes this class as "an introductory interdisciplinary humanities course including a study of the relationship between the humanities and man's values." My assumption is that if one wishes to be fully functional in today's world, one must possess some basic knowledge of the Western cultural heritage. As is stated in the assigned text, *The Western Humanities* by Matthews and Platt,

> If people are not educated into their place in human history . . . then they are rendered powerless, subject to passing fads and outlandish beliefs. They become vulnerable to the flattery of demagogues who promise heaven on earth, or they fall prey to the misconception that present-day events are unique, without precedent in history, or superior to everything that has gone before.

Or as Cicero said, "To be ignorant of what occurred before you were born is to remain always a child."

But I never designed *The Human Experience* as a traditional history or even art history course. Rather, I employed a values-based historical approach to the major achievements in Western humanities. Each culture reflects different values and these values define what is the highest good within that culture. Each age receives a set of values from the past, modifies those given values in the present, and transmits them to the future. And each age defines itself by the answers embodied in its most gifted artists and philosophers. What is the most beautiful? What is the good person? What is the highest goal of a society? What is each individual's responsibility to others in the society? What is the purpose of one's existence?

I taught this course for nearly 25 years in a traditional manner. Trained in the traditional pedagogy, I employed such tools as lectures, discussions, and slide shows. Since I was familiar with these tools and the educational establishment advocated these methods, I delivered knowledge to my classes in the prescribed fashion. Teaching between 250 to 300 students per class, I introduced a generation of students in *The Human Experience* to the great works of Western Civilization.

But a number of financial, educational, and technological changes recently challenged this traditional methodology and prompted me to develop a new delivery system. Many educators now advocate a paradigm shift from the lecture to a cooperative learning format. Budgetary constraints limit educational funding. But above all other changes, pedagogical or financial, revolutionary developments in technology influenced me most. A few years ago the possibility of an educational "global village," a network of students linked to their instructors, resources, and other students, was a distant dream. That dream is, today, a possibility. Students can now experience a museum in Denver, attend a convention in London, study periodicals in New York, read classical classics in Chicago, share their responses with others students in Los Angeles, and send their reactions to their professor in Spearfish, South Dakota.

And this technological revolution took place not in just a few, elite institutions. Five years ago, few of my students were computer literate; nearly all students are now familiar with spreadsheets, word processing, and databases. Few students on my campus two years ago knew the difference between the Internet and a "fishing net;" nearly everyone on campus now has an Internet identification number and uses the Web for personal and academic reasons.

As I contemplated these changes, I was both intrigued by the dangers to and the possibilities for higher education. The dangers seemed obvious. What was to become of the humanities scholars? Would they become replaced by the "Techies?" Would the race to embrace technological advances replace academic content with electronic process? I observed the attempts by many educational institutions to "deliver" courses via Internet and was appalled by the lack of solid, academic material. I became aware of the abundance of information communicated over the Net without much thoughtful evaluation or organization. Where in this Brave New World was there to be a place for those who introduce the values inherent in the past to the students of the present so that, as Matthew and Platt say, the students of the future are not "vulnerable to the flattery of demagogues who promise heaven on earth, or fall prey to the misconception that present-day events are unique, without precedent in history, or superior to everything that has gone before?"

Yet the educational possibilities raised by these innovations intrigued me. How could one, trained in the Classics or the Humanities, use this technology to deliver a superior product? Interested in the use and theory of personal computers, how could I develop a course that would accommodate the advances of technology? And considering the current emphasis upon Critical Thinking and Collaborative Learning, how could a course both employ Internet technology and simultaneously develop these new pedagogical elements?

Current weaknesses of most Internet courses

After reviewing numerous courses delivered on the Internet, I became convinced that few instructors utilize the full potential of the personal computer. Most merely deliver "Correspondence Courses" via the Internet by employing electronic mail to speed the process. Few instructors integrate hyper-link site information into their course content. Seldom do instructors require students to evaluate archived material. Most give traditional midterms and finals and fail to use the potential benefits of on-line testing. In short, few utilize all the following important educational benefits of interactive, computer technology:

a.) the speed of E-mail correspondence,
b.) the teaching potential of the hypertext format,
c.) the information possibilities of International site visitation,
d.) the ease of archived documentation,
e.) the educational benefits of collaborative learning via Listserv, and
f.) the instantaneous feedback of on-line tests, all of which contributes to
g.) an atmosphere of Collaborative Learning and Critical Thinking.

Description of this Course

Readings and Objective Tests

After reviewing these weaknesses in most current Internet courses, I developed a "wrap-around," interactive, interdisciplinary course:

(http//www.bhsu.edu/academics/disted/internet/courses/hum200/hum200.html).

Student reading assignments fall into two general areas: a close reading and knowledge of the primary text, (Roy T. Matthews and F. D DeWitt Platt, *The Western Humanities*. Mayfield Publishing Company, 1995), and a knowledge of numerous web sites or Internet links. The course reflects a "wrap-around" format because at the center is an assigned text that introduces the Humanities. Beginning with Pre-historical and ending with the Post-Modernist periods, the text presents the major trends, artists and works in Western culture. Organized chronologically into 21 chapters, the first part of every chapter discusses the historical, political, economic and social developments of each period. The remaining two thirds of each chapter describe the cultural expression of that period--such as that period's philosophy, art, drama, or literature. Accompanying this discussion are time-line charts, hundreds of photographs, summary sections, and lists of key cultural terms. Just as my students in the traditionally delivered class must illustrate proficiency of the text, students in this on-line class must also illustrate their familiarity. But the on-line students show their mastery through a set of on-line tests. The ancillary package currently supplied to instructors who assign the Mayfield text contains a test bank for each chapter, each test bank containing approximately 60 questions. I entered this test bank into Microsoft *Access*, added many more questions, and loaded it all on our University server, along with a random generator that produces a 25-question test for each chapter. The objective test bank, therefore, includes more than 1500 questions. Students take 21 tests, each containing 25 questions, the tests are scored, and the students immediately receive their earned percentages and the answers to their incorrect responses--all on their personal computers. Further, each student knows the grade curve, and if they fail to receive the grade they desire. they can study and retake the test until they receive a desired score. They cannot, of course, simply study the questions they previously missed because the computer randomly generates another 25-item test. In short, nearly instant evaluation is offered, a tool constantly advocated but seldom attained by educational experts. These tests, therefore, become less an assessment tool than a learning instrument.

Essays based on Site Examinations

The Internet is a rich source of information that could enhance a student's knowledge and appreciation of the material in the text. Students on the Net now have access to resources unimagined a few years ago. Museums, primary texts, annotated bibliographies, and copies of important documents are now available. A course textbook is no longer simply an isolated document; thousands of sites around the world contribute additional information, both in breadth and depth. Students, for example, no longer need to determine the style of a particular period through examples of one or two artists; students have access to dozens of artists working within a particular period or within a particular style.

Therefore, I identified many sites and organized them around each of the chapters in the text. After reading the text and receiving a satisfactory grade on each test, the student then answers one question in each chapter by writing essays based upon his or her knowledge of the hyper-linked sites. For example, Chapter Three introduces the student to classical Greek philosophy, architecture, literature and sculpture. The student takes the objective chapter test until he or she receives an acceptable grade. Then the student proceeds to the essay section. While the text introduces Plato and Philosophical Idealism, the student is not required to wrestle with Plato's original text. So I found a site that contained Plato's, "The Allegory of the Cave," linked it to the assignment by a simple "mouse click," and asked the following question:

> This and the following essay assumes that you have read closely, Plato's "Allegory of the Cave," and the comments in the archived document entitled allegory.txt." The preceding links have given you various sites. If we read Plato's "Allegory of the Cave" as a discussion of the goals and process of education, he seems to suggest that learning is an arduous task involving rather severe discomfort for the student. Today, many prominent education theorists seem to suggest that the foremost task of the educator is to make the student feel comfortable and build his/her "self esteem." *How would you account for the differences in these views? Could they be reconciled? Which is better? Why?*

Notice that a good response to the question requires that the student

a.) gathers and reads the information,
b.) comprehends the material,
c.) applies the story to a modern situation,
d.) analyzes the material in light of a new situation, and
e.) finally, makes a judgment.

One familiar with current educational theory will observe that these steps not only reflect Bloom's Taxonomy, but are also central to the development of Critical Thinking.

Students don't only share these essays with only their instructor. Collaborative learning theory suggests true knowledge occurs more rapidly and in greater depth if the students' work is shared with, commented upon, and evaluated by their peers. Thus, I share a student's response and require that all members of the course discuss the original essay. Hopefully, this cooperative response between the students is only the initial and formal result; other instructors who have attempted this formal interaction report that an informal network begins soon after the formal network in initiated. If the instructor shares the students' addresses, an informal networking occurs, a networking that accomplishes the instructor's primary goals through collaboration and reinforcement.

Other "Competency" Assessment Tools

Students always want to know the basis on which the instructor will distribute the grades. A few years ago that question was relatively easy--usually a grade was based upon the student's performance on a midterm and a final. But technologies and theories have changed. I can no longer justify distributing grades based upon two such tests. Rather, new pedagogy calls for a much wider "sampling" of a student's performance. Recent educational theory urges that students apply their newly acquired skills to a specific task, that collaborative learning becomes central to an educational environment, or that instructors institute portfolio assessment. In short, teachers today must develop various "Evaluation Engines" within their courses if they wish to reflect contemporary educational thought.

In addition to the objective tests and essays described above, I use the following six methods of assessment or "Evaluation Engines" in *The Human Experience*. These tests and essays, along with other tools listed below, become part of each student's portfolio. And these tools go far beyond the limited purpose of evaluation; they contribute not only to the instructor's assessment of the students, but also to the students' ability to comprehend, apply, analyze, evaluate, and synthesize the subject matter--techniques necessary in the modern world.

1. Asynchronous "Listserv" Postings.

I post to a class "Listserv" at least once a week. Each student must, in turn, post to this Listserv at least six times during the semester. These postings by the students involve responses to either questions or suggestions made by the instructor, or answers and questions developed by the students. The questions I post primarily focus on relationships between either particular sections of text, or between a particular section of the text and "external" events. The answers by the students should relate primarily but not exclusively to the instructor's prompts. The purpose of this activity is to develop an awareness by the students to artists and ideas within the assigned text to artists and ideas in the contemporary world.

2. Archive Retrieval Exercises.

Students examine at least three archival documents placed in the Listserv archives. These documents include lectures by the instructor, current essays found in popular magazines, timelines, graphs and charts. After retrieving these documents, students answer questions in the syllabus based upon these documents. The purpose of this exercise is to develop the students' ability to retrieve archived documents on the Net, to understand these documents, and to practice applying what they read from one source to a question on another source.

3. *"Chat mode" Conference Calls.*

Seven times a semester, or after every third chapter, students must participate in a class meeting to take place on-line in "Chat mode"-- a text mode, real-time dialogue. During this "electronic dialogue" the instructor discusses one major theme in one of the chapters. The purpose of this exercise is to evaluate each student's knowledge of the course content, to evaluate each student's facility with the technology, and to offer a forum in which each student may exercise these new ideas and tools.

4. *Audio and Personal Conferences.*

The class meets with the instructor for an introductory and final conference (or telephone call if the student cannot physically attend this meeting). The initial conference insures that all students understand the goals of the course, the methods of evaluation, and technical problems that the student may experience. The final conference gives a sense of closure and allows for course evaluation.

A summary experience consists of one or both of the following:

5. *A Midterm and Final Writing Experience.*

I always retain the option for a midterm and final examination. These examinations occur in a secure room at an appointed time. I draw the essay questions from the "Learning Goals" included at the beginning of each unit in the syllabus. Students have, therefore, a test bank of approximately 100 items, from which I will draw three questions for the Midterm and three questions for the Final.

6. *An External Humanist.*

The summary experience involves an on-line, real time, text-mode "Chat" with a humanist. The "Chat Mode" consists of introductory comments by the humanist, followed by a question by each student. The instructor evaluates the student's questions and the student's replies to the humanist in terms of his or her intellectual maturity, course knowledge, and aesthetic understanding.

In short, the student's responses constitute an "electronic portfolio," a body of responses that represents tools learned, material mastered, and "real-world" processes practiced. The student learns a wide range of beneficial electronic tools, masters a massive amount of course material, and practices a set of interpersonal processes necessary to interact with the modern, rapidly changing world. The instructor has a rather impressive portfolio to evaluate each student's growth and grasp of the material.

Conclusions

After refining and teaching this course for two semesters, a number of conclusions or observations about this Internet course in particular and Internet courses in general became apparent. This particular Internet course:

1. Uses the full power of the Internet technology (The speed of E-mail correspondence, the teaching potential of the hypertext format, the information possibilities of International site visitation, the ease of archived documentation, and the feedback of on-line tests).
2. Develops Critical Thinking.
3. Reaches many students who are otherwise unable to access the traditionally delivered educational system.
4. Extends students' knowledge beyond a traditional text-based format.
5. Teaches students a skill they will use extensively beyond the classroom.
6. Employs various pedagogical tools advocated by many, such as a portfolio based evaluation and collaborative learning.
7. Delivers Humanities material through a technical media.

Internet courses generally:

1. Reflect higher ratios of student success and failures; therefore, the developer must carefully consider the maturity and self-motivation of the students.
2. Rely heavily on the technical skills of the students; therefore, the developer must consider the students' technical levels
3. Depend critically upon administrative and technical support; without this support, Internet course development is impossible.
4. Handle no more students—probably fewer—than in a traditional classroom.
5. Necessitate a revision of faculty workload policies and evaluation instruments.
6. Reflect an unclear Intellectual ownership policy.
7. Lend themselves well to Graduate-level courses. The more mature students work better in this self-paced atmosphere.

No one knows where electronic technology will take Higher Education in the future. Some suggest that the very physical nature of the campus will change. For over 3000 years students have traveled to their teachers, whereas, in the future teachers will travel to their students. Some argue that the relationship between the instructor and the student will change. "The Age of the Sage on the Stage" is over, to be replaced by "The Electronic Guide on the Side." We will all have to wait to evaluate the accuracy of such grand pronouncements. I am, however, convinced that the

Humanities are not about to suffer a quick death because of the technological changes pervading our society. These new electronic and computer technologies give the instructor of the Humanities the tools to deliver his or her academic content more efficiently, more effectively, and more meaningfully.

1 ☐ From Plato to Cyberspace:

An Interdisciplinary Humanities Course on the Internet

2 ☐ Purpose of Presentation:

- To illustrate ***pre-writing considerations*** and some ***technical options*** available to those interested in developing a web-based course.
- To illustrate one example of a web-based course that used these considerations and options.

3 ☐ Pre-writing Considerations:

- Critical Thinking Strategies: purpose, assumptions, point of view, and implications of the course.
- Technical Strategies: techniques available to deliver the course.

4 ☐ Some Critical Thinking Strategies

5 ☐ What is the purpose of this course?

- To introduce students to the Classics of Western Civilization in order to produce better citizens, producers, and better consumers.

6 ☐ What are the assumptions imbedded in this course?

- Knowledge of our cultural heritage frees us from the continual present.
- Cultural objects reflect the values from when it developed.

7 ☐ What is the Point of View of this course?

- An Historical approach gives students a pattern of organization.
- An Interdisciplinary approach provides students with a synoptic vision.

8 ☐ What are the Consequences and Implications of this course?

- This course will prepare one for the uncertainties of the future.
- This course can help one make more informed ethical and aesthetic judgments about future choices.
- This course will prepare one to live in tomorrow's multicultural society.

9 ☐ Some Technical Strategies

10 ☐ Elements of "Electronic" education

- **Archives**
- **Hypertext/URL links**
- **Chat Groups**
- **Listservs**
- **On-line objective tests**

11 ☐

Eight "Competency" Assessment Tools Embedded

within

The Human Experience

12 ☐

- Objective Tests.
- Asynchronous "Listserv" Postings.
- Archive retrieval Exercises.
- "Chat Mode" conference calls.
- Essays based upon Site-examinations.
- Audio and personal Conferences
- Midterm and Final Writing Experience
- An External Humanist

13 ☐ Objective Chapter Tests

- 21 On-line, automatically graded tests.
- Immediate feedback, to student and instructor.
- 30 questions, randomly generated from 60 questions in each test bank.
- Purpose: an assessment tool and a learning mechanism.

14 ☐ Asynchronous "Listserv" Postings

- Postings concern common class interests and current events.
- Instructor posts to class Listserv each week.
- Purpose: To develop student's awareness of parallels between text and reality.

15 ☐ Archive Retrieval Exercises

- Students retrieve at least 3 archived documents.
- Documents include lectures, essays, and other ancillary material.
- Purpose: To develop an ability to retrieve documents, to understand these documents, and to apply material from one source to another source.

16 ❑ "Chat Mode" conferences

- Students participate in IRC conferences.
- IRC: Internet Relay Chat
- Synchronous
- Purpose 1: Evaluate students
- Purpose 2: Offer students a forum to apply their new knowledge.

17 ❑ Essays based upon Site examinations

- **Syllabus contains hundreds of hypertext links.**
- **Essays answer questions that can be answered only by knowledge of the links.**
- **Students complete 21 essays.**
- **These sites illustrate or extend the Text.**

18 ❑ Purpose of Essays based on Links

- To make connection between text and outside material.
- To formalize in their own minds various themes, motifs and trends discussed in the text and the linked sites.
- To develop Critical Thinking.

19 ❑ Audio and/or personal Conferences

- Students meet, physically or by phone, the instructor at the beginning and end of the semester.
- Purpose: at the beginning, to insure that students understand the goals and tools; at the end, to illustrate the student's growth and a develop a sense of closure.

20 ❑ Midterm and Final Writing Experience

- Traditional written Midterm and Final.
- Purpose: to insure integrity of at least one evaluation tool.

21 ❑ An External Humanist

- The summary experience: an on-line, text-mode Chat with external humanist
- Each student must respond to the humanist's comments.
- The humanist will discuss the Text from his or her scholarly perspective.
- Purpose: to extend the content of the course beyond the limits of text; to

offer another perspective on the course material

22 ☐ Conclusions and Observations

- Employs the full power of the Internet.
- Develops Critical Thinking.
- Reaches many who are unable to use traditionally delivered education.
- Extends knowledge far beyond a traditional text-based system

23 ☐ Conclusions and Observations

- Students acquire a valuable tool.
- Instructor becomes more than a "Sage on Stage."
- Can be self-paced.
- "Portfolio assessment" based.
- Higher rates of student "successes"--and failures (maturity and self-motivation is crucial).

24 ☐ Conclusions and Observations

- Developer and/or instructor must consider their students' technical levels.
- Critical need for administrative and technical support.
- Faculty can teach no more students--probably fewer--than normal.

25 ☐ Conclusions and Observations

- Faculty work-load policies and evaluation instruments must be revised.
- Intellectual ownership is unclear.
- Range of Internet applications--from simple E-mail to full range.
- Graduate courses lend themselves better to Internet applications

MIDDLE LEVEL TEACHER BELIEFS AND MIDDLE LEVEL REFORM

by

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Like adolescence itself, the emergence of the middle school has been marked by periods of gain, as well as by periods of plateau and periods of regression. After watching the middle school movement evolve from its own period of infancy and stumble through its own adolescence, many middle level researchers now question the effectiveness of middle school reform.

Background Information

Historically speaking, the difficulty of effecting change has been repeatedly underestimated (Goldenberg & Gallimore, 1991). Though the concept of middle level education as a response to the unique developmental needs of young adolescents has been in existence for nearly 100 years, it has yet to become a complete reality (Lounsury, 1992). Whereas it is the classroom teacher who is a key component in reform (Battista, 1994), efforts to examine why transformational middle level reform has not been accomplished are best pursued through a focus on classroom teachers. This focus needs to be on the knowledge and competencies which are embodied in teachers' personal belief systems (Guskey, 1986) for it is such belief systems which influence classroom behavior (Payne, 1994) and which ultimately either promote or impede reform (Guskey, 1986).

A review of the current literature on middle level reform revealed that while some studies had been done involving new teachers and their preservice middle level coursework, only one study had been conducted among teachers already teaching in the field. This may be due to that fact that teachers who prepared for the profession of teaching before the implementation of the middle school concept and before the initiation of middle level teaching certification did not have the opportunity to formally acquire such knowledge, skills, and attitudes (Dumser, 1991). Whether or not these teachers may have acquired the necessary knowledge, skills, and attitudes through their teaching experiences becomes a focal point when the lack of transformational reform in middle level education is examined. The purpose of the current study is, therefore, to identify the beliefs regarding the middle school concept of middle school teachers who have had middle level coursework and to also identify the beliefs of middle level teachers who have not had middle level coursework.

Research Questions

The present study addressed the following three research questions:

1. What set of beliefs do middle level educators with junior high and middle school teaching experience and no middle level education coursework hold regarding the unique developmental needs of young adolescents and responsive middle level teaching practices?
2. What set of beliefs do middle level educators with both junior high and middle school teaching experience and middle level education coursework hold regarding the unique developmental needs of young adolescents and responsive middle level education practices?

3. Does teaching experience at the middle level without middle level coursework lead to the same set of beliefs regarding the unique developmental needs of young adolescents as teaching experience at the middle level with middle level coursework?

Procedures

The nature of the study was survey research. Middle level educators in a Midwestern state were mailed questionnaires which consisted of a twenty item Likert-type scale designed to assess their beliefs and five forced-choice check-off items designed to collect information relative to teaching experience and middle level coursework. The items on the Likert Scale were developed using the ten essential elements of the middle school as presented in the National Middle School Association's "This We Believe" (1994). The 328 teachers who constituted the sample for the study were selected through the implementation of a stratified random sampling. The response rate was 86%.

Two specific populations of middle school teachers were identified--those with middle level teaching experience and eight selected credit hours in middle level coursework, and those with middle level teaching experience but without the eight selected credit hours of middle level coursework. Correlations between middle level teacher beliefs and middle level coursework and between middle level teacher beliefs and middle level teaching experience were calculated for each population. Comparisons were also made between the two populations based on the original research questions.

Results

The findings of the study indicated that middle level educators, both those with and without middle level coursework, supported the ten essential elements of the middle school with varying degrees of strength. Responses provided by middle level educators without middle level coursework ranged from 99.02% to 21.57% in support of the ten essential elements of the middle school while responses provided by middle level educators with coursework ranged from 100% to 34.21% in support of the ten essential elements. Overall, middle level educators with middle level coursework demonstrated a stronger belief in the middle school concept than those educators who had no middle level coursework on all but three items; these three items related to the development of student attitudes, competitive learning activities, and warm and caring role models.

Among middle level educators with middle level teaching experience and no middle level coursework, educators' beliefs became slightly less supportive of the middle school concept as their years of experience increased. Middle level educators who had middle level teaching experience as well as middle level coursework were similar in their responses. Their level of support for the middle school concept increased slightly as the number of hours of middle level coursework increased and their support for the middle school concept decreased as their years of middle level teaching experience increased. A correlation of 0.933 existed between the beliefs of the two populations of middle level educators.

The Beliefs of Middle Level Educators with No Middle Level Coursework

The extent to which each of the individual questionnaire beliefs was supported is indicated by the percentages that follow. For several statements, the intention was that the respondents would disagree with the stated belief which was nonsupportive of "This We Believe" (1994).

1. Middle level educators are to be committed to the needs of young adolescents, 99.02%.

2. To teach effectively, middle level teachers need to understand the range of normal adolescent behavior, 99.02%.

3. Warm and caring adult roles models are especially important at the middle level, 98.53%.

4. It is important for students that staff members "get along" and work together in harmony, 96.10%.

5. Middle level curricula are to reflect the social and emotional needs as well as the intellectual needs of young adolescents, 96.08%.

6. It is important that school counselors be available for all middle level students, 95.59%.

7. Instructional strategies that vary according to students' rates of learning and learning styles are essential at the middle level, 95.59%.

8. The development of attitudes is a vital part of the middle school curriculum, 91.67%.

9. The team plan period is an essential element in middle level education, 85.78%.

10. It is important that all middle level students complete the same assignments in the same manner at the same time, 82.64% disagreed.

11. Student involvement in self-evaluation on an on-going basis is important at the middle level, 86.28%.

12. Cooperative learning meets a developmental need of middle level students, 71.08%.
13. Mini-courses are very important for middle level students, 69.91%.

14. It is important that middle level students have an opportunity to plan their own learning experiences, 55.88%.

15. Multi-age groupings are appropriate for middle level education programs, 50.49%.

16. Competitive learning activities are important at the middle level, 43.63% disagreed.

17. Consistent and uniform instructional strategies are important at the middle level, 39.47% disagreed.

18. At the middle level it is important that established class schedules be followed on a daily basis, 38.84% disagreed.

19. Middle level instruction is characterized by students who are allowed to study topics of their own choice, 27.94%.

20. The purpose of the advisor-advisee/homeroom period is to provide time for announcements and other necessary "house-keeping" activities, 21.57% disagreed.

The Beliefs of Middle Level Educators with Middle Level Coursework

Once again the extent to which each of the questionnaire beliefs was supported is indicated by the percentages which follows. For several statements it was intended that the respondents would disagree with the stated belief which was nonsupportive of "This We Believe" (1994).

1. Middle level educators are to be committed to the needs of young adolescents, 100%.

2. To teach effectively, middle level teachers need to understand the range of normal adolescent behavior, 100%.

3. It is important for students that staff members "get along" and work together in harmony, 100%.

4. It is important that school counselors be available for all middle level students, 100%.

5. Middle level curricula are to reflect the social and emotional needs as well as the intellectual needs of young adolescents, 97.37%.

6. Warm and caring adult role models are especially important at the middle level, 97.37%.

7. Instructional strategies that vary according to students' rates of learning and learning styles are essential at the middle level, 97.36%.

8. Cooperative learning meets a developmental need of middle level students, 97.36%.

9. Student involvement in self-evaluation on an on-going basis is important at the middle level, 94.73%.

10. The team plan period is an essential element in middle level education, 92.11%.

11. It is important that all middle level students complete the same assignments in the same manner at the same time, 92.10% disagreed.

12. Mini-courses are very important for middle level students, 89.48%.

13. The development of attitudes is a vital part of the middle school curriculum, 89.47%.

14. It is important that middle level students have an opportunity to plan their own learning experiences, 73.68%.

15. Multi-age groupings are appropriate for middle level education programs, 76.31%.

16. The purpose of the advisor-advisee/homeroom period is to provide time for announcements and other necessary "house-keeping" activities, 60.53% disagreed.

17. Competitive learning activities are important at the middle level, 42.10% disagreed.

18. Consistent and uniform instructional strategies are important at the middle level, 36.84% disagreed.

19. Middle level instruction is characterized by students who are allowed to study topics of their own choice, 34.21%.

20. At the middle level it is important that established class schedules be followed on a daily basis, 27.45% disagreed.

Discussion

The findings of this study suggested that middle level educators with middle level coursework hold beliefs that are similar in nature to those middle level educators without such coursework. The real significance of the findings, however, may be embraced in the fact that while middle level educators with coursework supported the middle school concept in relatively the same manner as middle level educators without coursework, middle level educators with coursework supported the beliefs with greater strength than middle level educators without coursework and with less indecision. Middle level educators without coursework supported the middle school concepts more than middle level educators with coursework on only three Likert items and then only by an average of less than two percentage points. In contrast, middle level educators with middle level coursework, supported middle level concepts by an average of over ten percentage points more than middle level educators without coursework. The difference in differences suggests positive results from middle level coursework.

Middle level educators with coursework were also less indecisive about their beliefs. This was evidenced by the percentage of responses given by respondents without middle level coursework that were indecisive. This appears to suggest that middle level coursework affords educators with a greater opportunity to synthesize their thoughts and reflect upon what they believe. As Farnan and Dodge (1995) report, such reflection is a necessary step in the processes of change and reform.

In summation, the results of this study demonstrated positive results from participation in middle level coursework for teachers who were already teaching in middle schools.

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Overview of the Study

This study investigated the beliefs of middle level educators regarding the unique educational needs of young adolescents. It considered two distinct middle level teaching populations in an upper Midwestern state: teachers with junior high and middle school teaching experience and no middle level coursework and teachers with junior high and middle level teaching experience as well as middle level coursework. The beliefs of middle level educators were investigated in accordance with the ten essential elements of the middle school as presented in the National Middle School Association's "This We Believe" (1994).

The findings of the study indicated that middle level educators, both those with and without middle level coursework, supported the ten essential elements of the middle school with varying degrees of strength. Both populations were relatively similar in their beliefs. Among middle level educators with middle level teaching experience and no middle level coursework, educators' beliefs became slightly less supportive of the middle school concept as their years of experience increased. Middle level educators who had middle level teaching experience as well as middle level coursework responded similarly. Their level of support for the middle school concept increased as the number of hours of middle level coursework increased. Their support for the middle school concept decreased as their years of middle level teaching experience increased.